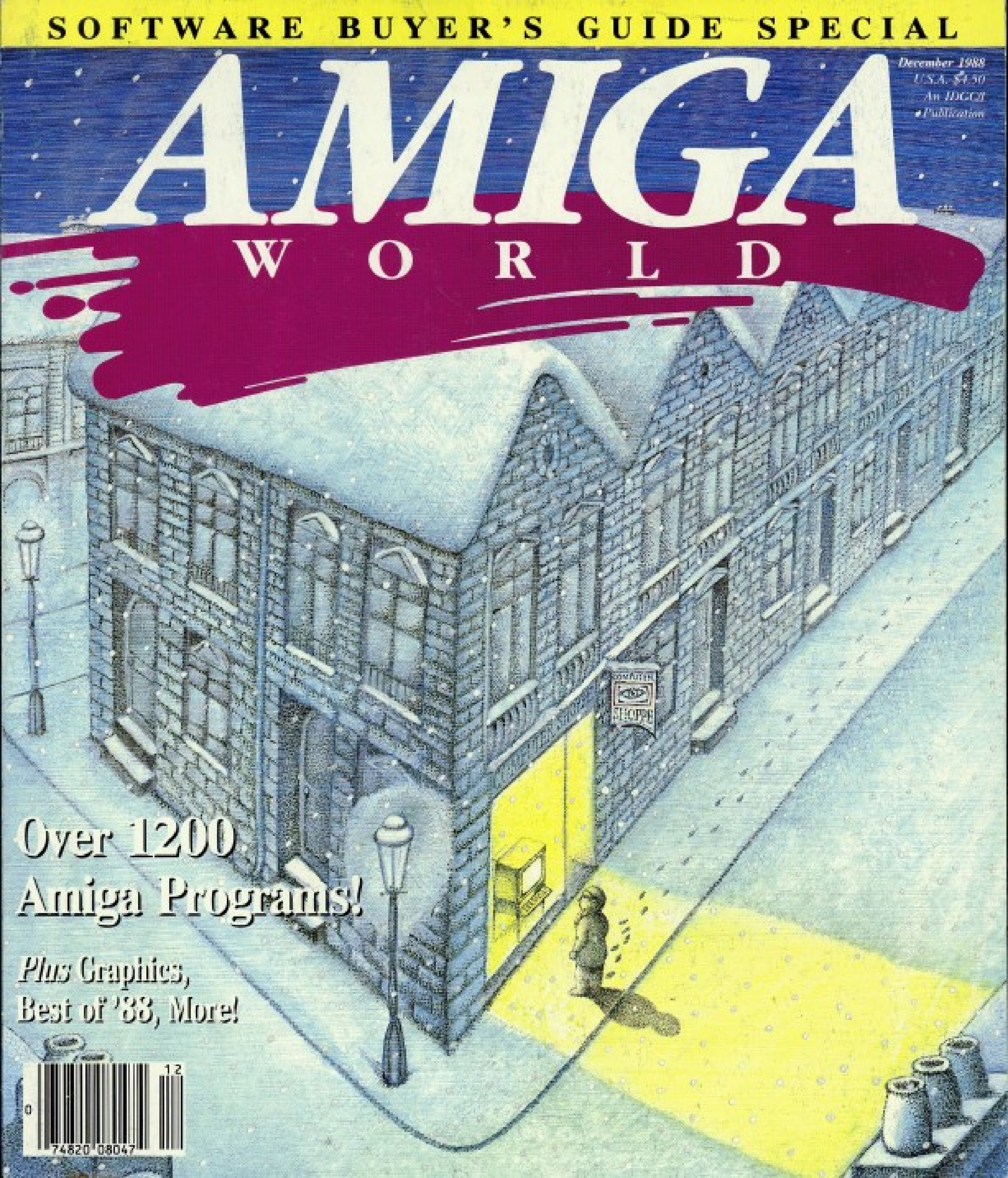

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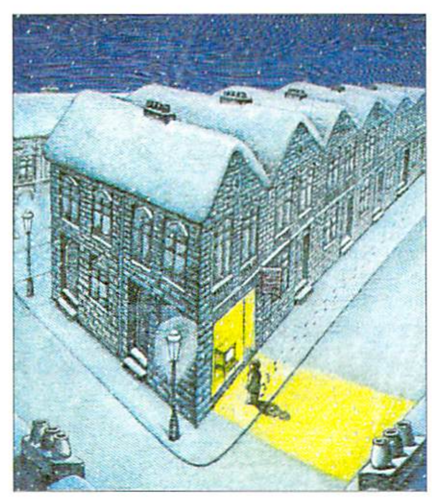
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VOLUME 4, NUMBER 12 DECEMBER 1988

CONTENTS



When we put together last year's Great Software Buyer's Guide, we were impressed with the fact that there were over 650 individual programs for the Amiga—a far cry from the 1985-86 days when there was virtually no third-party support for the system. But now, just one year later, we've come up with an astonishing figure of over 1200 programs. What's been happening over the past 12 months? It would appear that the Amiga market has gone from growing to booming—and that's good news for everyone!

FEATURES

THE GREAT SOFTWARE BUYER'S GUIDE *Compiled by Barbara Gefvert and Jan Jackson* . . . 19
The *ultimate* Amiga software reference. Our buyer's guide gives you the what, where, who, and how much for every program available for the Amiga—from business tools to education to games to graphics to programming aids to esoteric utilities (and a whole lot more). This year's guide makes *War and Peace* look like a short story, with over 1200 programs and a complete list of all Amiga software manufacturers and distributors.

ARTICLES

LEARNING FROM A "PRO" *By Bill Catchings and Mark L. Van Name* 76
This tutorial for the BASIC amateur presents Superbase Professional's powerful DML: a BASIC-derived programming language that allows you to perform a decathlon of data-management tasks.

ACCENT ON GRAPHICS *By Joel Hagen* 90
We begin an occasional series of tips and techniques from a well-known Amiga graphics artist who will help you create richer, more imaginative images with your Amiga. Part 1: Airbrush Painting.

1988 *AMIGAWORLD* READERS' CHOICE AWARDS 102
Find out what the most discerning critics in the world—your fellow Amiga users and *AmigaWorld* readers—feel are the best and the brightest in seven broad categories of Amiga products.

COLUMNS

ZEITGEIST 6
It seems the editor is trying to demonstrate the relationship between our massive software buyer's guide and the mainstream of Judeo-Christian tradition along with the linguistic heritage of the entire Indo-European language family. . . hey, after all, it's *his* column!

INFO.PHILE *By Mark L. Van Name and Bill Catchings* 94
Our AmigaDOS experts wrap up their five-part "mini-series" on the new features of the 1.3 operating sytem with a look at 1.3's new recoverable-RAM disk called RAD:.

NOTE: Because of the length of the Software Buyer's Guide, BASIC BY THE NUMBERS will not run this month. Watch for Bob in the next issue.

DEPARTMENTS

REPARTEE 8
Seasonal greetings and grousings from the readers.

NOTEPAD 10
More news on the Treasure Hunt (with a list of consolation winners), plus an Amiga news report from the UK.

HORS D'OEUVRES 12
Tasty Holiday morsels of tips and techniques from *AmigaWorld* readers.

REVIEWS 14
Deluxe PhotoLab / EXP-1000 / X-Specs 3D / WordPerfect Library / Ultra DOS Utilities and DiskMaster. **Games**: Death Sword / Ports of Call.

WHAT'S NEW? 122
On special delivery from the North Pole comes a sack of new Amiga products for Holiday shoppers.

HELP KEY 128
St. Nicholou Wallace has been down a lot of chimneys this month battling the grinches who've been fouling up your equipment.

COVER ILLUSTRATION BY PETER SIS

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ZEITGEIST

Ho. That's enough Xmas rambling for now.

On to the good stuff.

IN THIS OVERSTUFFED issue you will find the ultimate, definitive, all encompassing, once-a-year, mundo-macho software buyers guide! If it runs on an Amiga, it is in here somewhere, and if it isn't listed in these pages, then either you don't need it, the company never told us about it, or we made a mistake (highly unlikely, but stranger things have happened).

We spent a lot of effort pulling together this list of software. We created a database of every known company on the face of the planet, sent it off to our team of psychics who then divined which companies have people working for them who have heard the word "Amiga." That list was promptly shredded.

We then translated the word "guide" into many diverse and archaic languages (not Swahili, though) and determined the pancultural impact that tongue twisters have had on preschool teachers in the $15–25,000 income range. Those results we threw away as soon as they were generated (so that it didn't effect the overall random skewing of the guide compilation).

In the instances where exhaustive statistical analysis revealed a correlation between fingernail biting and penumbral eclipses falling in odd years, we used a highly sophisticated and somewhat arbitrary AI (artificial ignorance) program to select the companies we actually called. If they answered on the third ring, we hung up; if they answered on the fifth ring, they usually hung up, and if they didn't answer at all, then we just guessed what they were doing.

Occasionally, we ended up in communication with a manufacturer who was actually producing Amiga software (this kind of thing is almost unavoidable when you are in this business). If they couldn't be put off with a barrage of insulting remarks and insisted on telling us about their product, then we asked a series of yes-or-no questions to determine the exact nature of the software. "Are you drinking coffee at this moment?," "Do you believe in trans-channeling?," "What color is the rug in your office?" These and other marginally relevant queries were usually enough to discourage even the most exuberant marketing person.

"Think of this as our holiday offering."

Despite our indifference (some might say incompetence), lists just seemed to appear. Perhaps it was fate, or Karma, or the hand of some unseen force. I believe the real reason we did this guide was that a simple list was much easier to put together than a bunch of articles with illustrations, topics, and all those different words. Whatever the reason, we somehow managed to finish it, so here it is.

The *AmigaWorld* Software Buyers Guide. Like Speigel, Sears, and whatever the name of that catalog is that has all the chocolate logs and cheeze balls that everyone gets but never remembers to order from even though they were only going to order something for themselves anyway, all rolled into one.

Think of this as our holiday offering. A bit of cranberry and some gravy on a turkey TV dinner. A few new buttered kernels strung on an aluminum tree. A wreath stolen from your door. A white plastic Santa leaning, flashing, waving to no one in your yard. Something new to read when the re-re-run Xmas specials on television have you on the verge of Santacide. More than just another tie or pocket calculator. Beyond the Grinch and Burley Ives, the Comos and the Scrooges. This is the real thing. The true spirit of giving. Just have your credit card ready and happy, happy ho.

Guy Wright


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REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

And the Winner (Finally) Is. . .

EDITOR'S NOTE: We apologize to all our readers who have been following AmigaWorld's *Summer '88 Treasure Hunt over the past several issues. It must have been an unpleasant shock to read in last month's Contest Results article (Nov. '88, p. 76) that where the winner's name was to appear, the following line was printed: "That lucky person's name / and hometown."*

Because we wanted our readers to be informed of the complete contest results as quickly as possible after the September 16 drawing, we made arrangements with our printer to patch in the winner's name as a last-minute change just before the issue went to press. Through circumstances beyond our control, the printer failed to execute our wishes. We are well aware of the enormous amount of time and effort so many readers put into solving the contest, and we deeply regret this unfortunate omission.

We did indeed have a Treasure Hunt winner—Dick Newell of Billings, Montana—whom we contacted immediately following the Grand Prize drawing. For more about Dick, and a list of the consolation prize winners, see "Notepad," p. 10, in this issue.

Again, our apologies for the disappointment this omission may have caused, and our warm appreciation for the support and enthusiasm shown for the contest.

Dear Santa. . .

I'M WRITING TO you early, Santa, to give you time to prepare for December 25th.

In my A2000, I'd like a 68030 with a 25 Mhz coprocessor, MMU and 4 megs of 32-bit SRAM. Please, Santa, don't make me wait till the next decade for such a board to be available for less than the price of my A2000.

Oh! And Santa, another thing, let's not play IBM's planned obsolescence game. The next chip RAM plateau must be two megs. And I'd like it next week—I can't wait till Christmas.

This is the computer business Santa, and there are Mac IIs out there to contend with.

My chimney's the third one down on the left.

Rob Thomas
Forest Hills, NY

Bring Back the 1000

I HAVE BEEN reading about the problems that Fred Kuhlman and John Payne have had with the Fat Agnus chips in their Amiga 500s ["Fat Agnus on the Loose," Repartee, May '88, p. 10, and "Another Lemon," Repartee, Sept. '88, p. 8]. Boy do I like the Amiga 1000! I have had the A1000 for about three years, and I have not had one glitch due to the computer.

Commodore should start manufacturing the Amiga 1000 again. They should also improve (I guess I should say repair) the A500. If the bugs in the A500 can't be fixed, then the Amiga 1000 should be the obvious answer.

Marc Hoffman
Julesburg, CO

I FULLY AGREE with Rick Jones ["New Motherboard," Repartee, August '88, p. 8]. I have owned an Amiga 1000 for almost two years and I wouldn't trade it for any of the new Amiga models. I think Commodore made a big mistake by discontinuing the A1000. The gap between the 500 and the 2000 is too large.

Let them make a new A1000, a computer for the more serious hobbyist and artist. It should be specially designed for graphics, desktop publishing, animation, CAD, music, desktop video, etc. And with enough internal memory to cope with all this and the possibility for internal RAM expansion.

Luc Stynen
Berchem, Belgium

RAM-Disk Support for Games

I HAVE AN Amiga 1000 with two megs and I like to play games on my machine as well as do real work. I would like to see the companies who develop entertainment software recognize the existence of machines with more than 512K. Simply, use a RAM disk for disk-intensive games, such as Destroyer by Epyx. This could make play much more enjoyable, as well as faster. I would not mind paying a small extra fee to receive a version with RAM-disk support, or the command sequence required to alter the program myself.

E. Paul Austin
APO, NY

One More Button

I ENJOY PLAYING games on my Amiga 500, but there are times when I look back to my Apple II days wistfully. Usually it's because the Amiga lacks a two-button analog joystick. One more button would add a new dimension to many games.

Isn't there anybody out there willing to make a few bucks by selling a two-button joystick? If one is made and sold for $10–$15, I'd buy a couple, and I'm sure there are thousands of others who would do likewise. Once the hardware is out there in quantity, the software will follow to take advantage of it.

Jason Chung

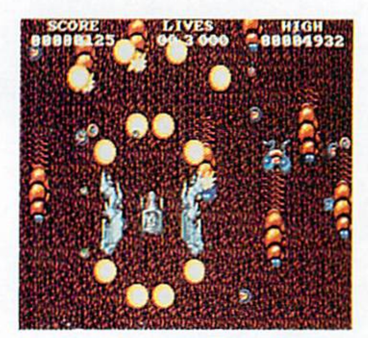
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NOTEPAD

Compiled by Linda Barrett



Treasure Hunt consolation winners received Discovery's Hybris.

O Consolo Mio!

EVEN THOUGH WE failed to publish his name in time to appear last month (see "Repartee," p. 8, in this issue), and despite having to contend with such well-known headline grabbers this fall as George Bush and Mike Dukakis, Dick Newell still managed to become a household name throughout America. You probably caught the Billings, Montana resident on the Carson show or chatting with Ted Koppel, or perhaps you saw him on the cover of *Time*, and immediately recognized him as the winner of *AmigaWorld*'s Summer '88 Treasure Hunt. (Actually, in next month's column you *will* be seeing Dick and his wife Carolyn collecting their new Amiga 2000 at the Mark Hopkins Hotel in San Francisco.)

Right here, however, we wanted to turn the spotlight on some of the lesser-known Treasure Hunt winners. Because the response to the contest was so strong, we decided to draw 12 consolation winners from the remaining correct entries.

The 12 people named below will receive a copy of the new arcade shoot-'em-up *Hybris*. Discovery Software of Annapolis, Maryland, has generously donated the 12 copies, plus an additional three to the people whose names appear at the end of the list as consolation winners for their "special" contributions to the contest as described last month.

Linda Kirpes Beltsville, MD	Dorothy Paschall Independence, MO	Mike Sutherland Gulfport, MS
Paul Walker San Anselmo, CA	Marcus Miller Colorado Springs, CO	Bryant W. Scott Virginia Beach, VA
Mr. & Mrs. C. Erickson Greeley, CO	Bill Burton Hazelwood, MO	Don Boose Freeport, NY
Fuad Aziz Winter Park, FL	Robbie Vasilinda Eugene, OR	Allen Kinzey Wrentham, MA
Joe Vasquez Globe, AZ	John Andre Greenwood, IN	Adam Kortepeter Skillman, NJ

We hope you enjoy your prizes, and we thank you—and all the others who played—for participating in the Treasure Hunt. Also rest assured: We will indeed have another contest next year—most likely not a treasure hunt, but nonetheless a comparable test of imagination and resourcefulness. It may even be trickier and more complicated, so stay tuned. . .and we even promise to let you know who won next time!

—DS

Shows and Games in the UK

THE PERSONAL COMPUTER SHOW, held at London's Earl's Court, is the UK and Europe's launching pad for new hardware and software, and this fall's show was no exception.

For a change, Commodore UK representatives were smiling. The company's marketing has taken a major leap forward recently, with the Amiga 500 aiming for the top of the sales charts by Christmas. Commodore also changed its A2000 marketing strategy—selling the machine within "complete solution packages" for such areas as CAD and desktop publishing. The company promised all sorts of new peripherals, and there were encouraging reports about a working *Transputer board*.

With machine sales on the upswing, developers at the show made a large, but lighthearted, push for their new games. Rainbird (UK: 01-631-5373, US: 415/322-0900) hopes to make a big Christmas splash with *Fish* and *Corruption*. Following the success of its *Batman* game, Ocean Software (UK: 061-832-6633) promises a follow-up that is just as corny as the comics and films. Other Ocean releases are *Operation Wolf* (handled in the US by Taito, 604/984-3344), *WEC Le Mans*, *Typhoon*, and *Victory Road*.

US Gold (UK: 021-356-3388), usually associated with marketing American products in the UK, is also offering arcade games programmed in the UK—*Out Run* (handled in the US by Mindscape, 312/480-7667) and *Thunderblade*.

Psygnosis (UK: 051-236-8818, US distributor: Computer Software Services, 800/422-4912) lengthened its string of games with a shoot-'em-up called Menace.

Outerspace will be crowded. After landing Starglider II, author Jez San began the Amiga version of *Afterburner* for Mediagenic (UK: 01-431-1101, US: 415/329-0800). Domark (UK: 01-947-5622) is launching the sequel to Star Wars (handled in the US by Broderbund, 415/492-3200), *The Empire Strikes Back*. *The Return of the Jedi* will follow.

Closer to home, Domark presented the *1989 Computer Maniac's Diary*. It's software full of trivia, information, and puzzles, not a pocket diary, but as far as gimmick value goes, it can't be beaten.

—Stu Menges
Middlesex, England ■

HORS D'OEUVRES

Hints, tips, and techniques

from your fellow Amiga users.

Okimate 20 Black and White

MOST OF THE colors on my Okimate 20 printer are good. However, I found a way to make one of them excellent. Plain black usually comes out dark navy blue if you are using a color ribbon, or light black with white speckles if you are using a black ribbon. Here are two ways to make it as solid and pure as magazine print.

First, if you are printing an all black-and-white picture, just set your preferences graphic select to color, but use a black ribbon. This way it will make three passes of black instead of one yellow, one red, and one blue, which results in navy-blue-black.

Second, if you are printing a color picture, go ahead and print it with a color ribbon, but mark your spot on the paper. Change all the colors in the color menu (except black, that is) to white, change your preferences settings to black and white, and then go back and print over the picture a second time using a black ribbon. This will make one pass of true black over the navy-blue-black color printing and give you a nice sharp result.

Douglas Rollison
Upland, IN

2000 Genlock

WHEN I BOUGHT my Amiga 2000, I was upset to hear that I couldn't use my Genlock 1300 that I had been using for my A1000. After many calls around town, I was happy to find out that a cable could be made to allow me to hook up the 1300 to my 2000, but I couldn't manage to get a cable or find the parts to make one myself. After looking at the 2000 and the 1300, I realized that I wouldn't need a special cable. All I had to do was elevate my 2000 about 1 ¾ inches off the desk. I tried it with a thick book, and voila! It worked like a charm. I am now setting out to construct a stand that will support my 2000 a bit better, which will be cheaper than any cable or buying a new genlock.

James Nakakihara
LaPalma, CA

Animation Reference

IF YOU'RE EXPERIMENTING with animation and you don't know how long to time an action in frames, then you are lost. I found a $40 book from England called *Timing for Animation* that is very helpful. Few stores carry it, but you can order it if you are serious enough. The ISBN number is 0-240-50871-8. Copyright 1981, Focal Press Ltd. Library of Congress #80-41303. This book has everything for timing actions in an animation.

Rich McClelland
Glendale, CA

BASIC Search and Replace

AMIGA BASIC HAS one of the best editors around, but it does lack a few features. It would be nice to have a find function, for instance, for those times when you wish to locate all occurrences of a variable. Well, it turns out that this is not impossible—you simply use a different editor that you already own.

Save your BASIC program as an ASCII file by using the ",A" option of the SAVE command. Example:

```
SAVE "Myprogram.btx",A
```

I add .btx at the end to indicate that the program is in ASCII format when I later look at a directory listing. This ASCII listing can then be loaded into the ED editor from the CLI, and all of ED's functions, including Find and Find with Replace, can be used on it. You can then load the program back into Amiga Basic and run it as normal. No special commands are needed to load the ASCII version. Just treat it as any other BASIC program. When you resave it again, you restore it to its normal (tokenized) form on the disk. Since the Amiga can multitask, you can just drop behind the Amiga Basic window and run ED from there without disturbing Amiga Basic one bit.

For those unfamiliar with ED's Find option, you simply press the ESC key, then type:

```
f /word/
```

(where "word" is the set of characters you want to locate) and press Return. Using CTRL-G after finding the first instance will find the next, and so on.

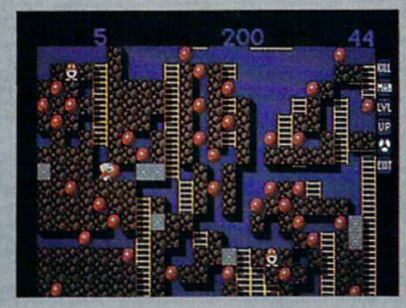
Brad Webb
Watertown, WI

8520 Chip Replacement

FOR THOSE EXPERIMENTERS who have blown an 8520 Peripheral Interface Adapter (PIA), the equivalent replacement is the MOS 6526 chip. I've heard rumors of certain dealers charging $70 for an 8520. That's a rip-off! The 6526 is available by mail order for about $12.50 from Kasara Microsystems, 33 Murray Hill Drive, Spring Valley, NY 10977, 914/362-3131.

Ron M. Battle
Albuquerque, NM

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, Amiga-World *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an* AmigaWorld *surprise gift.* ■

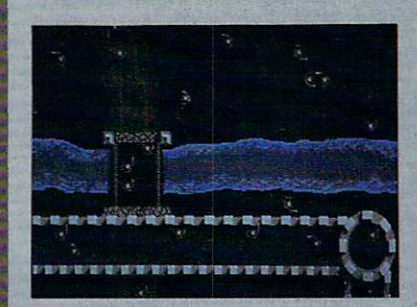


Targis
Amiga Version

Targis

Spies have stolen valuable parts from a secret laboratory and have hidden them in their cavernous hideout. Targis, our best agent, has followed the spies into their lair and must retrieve the parts. Equipped only with a "safe" blaster, he must journey through the many levels of the cave hideout and GET THOSE PARTS!

Over one hundred randomly selectable levels. A screen editor allows you to create new mazes to explore and share with your friends. An infinite number of levels are possible and allow unlimited hours of playtime. Share the danger and the honor of helping Targis save the free world.



Kingdoms of England
Amiga Version

Kingdoms of England

Enter into a land of long ago, where Kings and Knights kept the peace and honor of England. Reunite the lands of England and bring happiness to your subjects.

Kingdoms of England features a full size map of England. Battles and special occurrences have full size representations of the area and allow full control over hand to hand combat between the opposing armies.

A huge playing map, takes you through thousands of possible scenarios and screens on your quest for the Crown of England. One or Two player support!

Snake Pit
Amiga Version

Snake Pit

The evil Melator does not like snakes. In fact he thinks that snakes have no right to live. But, he is a fair man and so he has put forth a challenge to your kind; survive his dungeon and he will allow your race to survive.

But be careful, the levels are full of tricks, along the levels of his dungeon the evil Melator has placed food. Some food helps you to grow, some makes you smaller. Finding secret walls and passages may help you on your quest to rid your race of the doom looming over it.

Snake Pit features over 100 levels of play. Levels too difficult for you?? Well, make some easier ones using Snake Pit's level editor. Or if you think you're so good and this quest is too easy for you, design your own deviously complicated levels and share them with your friends. Unlimited number of levels makes for endless hours of enjoyment.

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REVIEWS

Deluxe PhotoLab

A graphics triple threat that lets you put all your baskets in one egg.

By Roger Goode

ANOTHER ADDITION TO Electronic Arts' Deluxe Creativity Series, Deluxe PhotoLab combines paint, image-processing, and graphics-printing programs on one disk. The result is a well-integrated package that will interest artists, photographers, and those who dabble in arcane computer imagery.

The three programs, Paint, Colors, and Posters, make up a professional-graphics-applications workbench on which the Amiga artist can hammer out almost any problem to his or her satisfaction. While none of these programs offers anything completely new to the crowded Amiga graphics market (although each does have its share of neat little tricks), the intelligence of their design and the convenience of finding them "all under one roof" should appeal to both professionals and amatuer artist/photographers alike.

The first (unofficial) test I give to any new software package is the "Damn the manual. . .pop it in the computer" trial; while not very scientific, it will show you a great deal about a program. PhotoLab passed the test quite nicely. Although I was not able to master all the finer points of each program (especially Colors), I found them intuitive enough, or familiar enough from the use of other graphics programs, that I could start using them effectively without referring to the manual.

The manual itself is well written and thorough. It is laid out so that you can read as much as you need to get into the program, and use the rest as reference material. For those with less operational background, the manual is concise and easy to understand. Although I don't expect to see it made into a movie or a prime-time mini-series, it can be read cover to cover with no permanent side effects. Each program has its own section with a short guided tour through the more important features, followed by a set of tutorials and then a complete reference section that briefly details every function and menu entry.

Paint

Like the other programs on Deluxe PhotoLab, Paint is equally at home in any of the eight screen formats available on the Amiga. PhotoLab supports low and high resolutions, Extra_HalfBrite, and Hold and Modify. Each of these modes may be interlaced or non-interlaced. As you load the program, a requester box asks you to choose a screen format. It also asks you to determine the number of bit-planes to be used (limited, of course, by which format you have already chosen) and whether you wish to use a full or three-quarter screen.

Provided you have enough memory, you can open a second screen that sits behind the first. The unusual thing about this is that the two screens may be in different display modes. You can swap the two screens back and forth and work on both at the same time.

The Paint toolbox and menu bar run across the top of the screen, and together take up only about one inch of space. While the toolbox looks rather ►



A portrait of the artist: The canvas is colorized with Paint Mode menu options.



JACKPOT

The latest multi-player multi-format PC game from Australia is different to all forms of Poker.

Aussie JOKER POKER features 90 player capacity, open-ended discard ability, selectable deck size and hands per player, password controlled gambling system with automatic accounts – and **5 free entry forms for the $200,000 Aussie JOKER POKER Contest.**

Each month December 1988 through April 1989 winners of 240 JOKER SOFTWARE games and 4 finalists will be randomly drawn from all entries received that month.

With a guest, the **20** Finalists will be flown to Las Vegas to play **Aussie JOKER POKER** for a **first prize of $100,000 in cash** at the **Golden Nugget.**



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GOLDEN NUGGET

1,220 Prizes Value $200,000

1,200 Joker PC software games at $29.95 to $49.95 dependent on disk format. Game prizes at sole discretion of sponsor.	$60,000

Cash Prizes for Aussie JOKER POKER Contest Grand Final:

Highest Scorer:	$100,000
Second Highest Scorer:	$5,000
Third Highest Scorer:	$2,500
Lowest Scorer:	$1,500
16 Consolation Prizes of $1,000 each to eliminated Finalists	$16,000
Prize includes air travel for Finalists and their guests from the major airport to Las Vegas with two days and two nights accommodation at the Golden Nugget (approx. retail value $750 each subject to departure points).	$15,000

All taxes and other expenses not specified herein are sole responsibility of winners. All winners will be notified in writing.

C64/128™

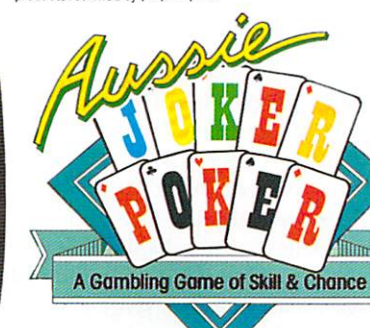
Aussie JOKER POKER is available for SIX major PC's

If your PC has a mouse or keyboard, a mono or color monitor and a 512K minimum ram (except Apple II and C64/128 use 64K and keyboard only) you and your family can practise at home for the Las Vegas final of the **Aussie JOKER POKER contest.**

Suggested retail prices:

IBM & compatibles (CGA Board required)	**$39.95**
Amiga & Atari ST	**$49.95**
Macintosh (mono only)	**$49.95**
Apple II	**$39.95**
C64/128	**$29.95**

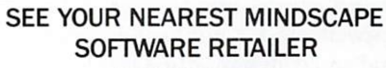
If ordering by telephone add $3 shipping & handling and check that your PC meets the minimum hardware requirements as no cash refunds apply. Warranty is limited to free replacement of faulty products returned by prepaid post.



Another Wonder from Down Under

Aussie JOKER POKER Contest Rules

1. No purchase necessary to enter.
2. Void where prohibited by state or federal law.
3. To enter, simply complete and return the the official entry form.
4. Limit five entries per family or household. Five free entry forms and full contest rules are included with "Aussie Joker Poker" or may be obtained by sending a stamped self-addressed envelope larger than 5½" × 7½" with a hand written request to: Aussie Joker Poker Contest Entry Forms, P.O. Box 22381, Gilroy, CA 95021-2381. Mail-in requests limited to one per name, household or family and must be received no later than 3/31/89. WA & VT residents need not include return postage. Full rules also available from participating Mindscape retailers.
5. Monthly entries must be received no later than the last day of the month in which a drawing will take place in order to participate in the month's drawing. Drawings will be held from December, 1988 through April 1989, inclusive. Final entries must be received by 4/30/89.
6. Contest open to legal residents of the U.S.A. and Canada (other than Quebec).
7. Odds of winning depend on number of eligible entries received.
8. Contest subject to complete official rules.





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sparse, its features are comparable to other paint programs. The small, space-saving on-screen palette is backed up by a full 4096-color palette on a separate screen that resides behind the active painting screen. The palette screen features the 16–32 register palette from the toolbox, plus a series of sixteen large squares that make up a permanent display of all 4096 colors and a paint set of four rows with 32 colors each. You can use the paint set to create experimental color spreads and mixtures, and then copy them to the register palette for use in lo-res, hi-res, and HalfBrite mode pictures. With HAM pictures, colors can be mixed in the paint set and then used directly in the painting. Most of the more familiar palette functions are found here: color spreads, copy color, RGB and HSV sliders for adjusting colors, and ranges that can be created for use with special gradient fills.

Most of the basic painting tools are represented in the on-screen toolbox display. For the great majority of these, and for many menu items, there are keyboard equivalents which Electronic Arts has made as logical as possible (p for Palette, u for Undo, and so on). The basic tools are: Dotted freehand, Continuous freehand, Straight line, Curve line, Airbrush, Text, Fill, Filled and Unfilled rectangle, Filled and Unfilled ellipse, Freeform shape, Brush selector, and Magnify/Zoom.

All of these tools work in any of the display modes, and many have special functions. The Curve tool, for example, uses four points to make a curve, rather than the usual three, to allow for an added degree of finesse in creating smooth curved lines. Normally you would have to patch two curves together, to create a flowing "S" for aFrench curve, but this tool lets you do it in one operation. Another nice innovation is the use of the Shift key to constrain rectangles and ellipses into squares and circles, respectively. It's not headline stuff, but good smart design. The Oval tool provides the option to either draw the oval from the center out, or to fit a rectangle defined on screen.

There are also a couple of nice touches added to the Custom-Brush menu. One is Resize Draw, which allows you to take any custom brush attached to the mouse and resize it and paint it in one operation (simply by defining a rectangle—regular or irregular—around the space you want the brush to print). This can be done with a brush of rectangular or irregular shape. Another useful item is Grab Last, which will pick up the last thing drawn to the screen. If you depress the Shift key while selecting Grab Last, you can pick up a brush from under any custom shape last drawn to the screen (for instance, you can pick up a custom brush inside an ellipse).

The paint-mode menu contains a complete array of selections for effects that can be created using the custom brushes or paint tools. These include: Solid, Mix, Low Mix, Average, Blend, Shade, Sub Pict, Scale, Add, Max, Min, Or, Xor, And, Hlf, B&W, and Sub. Some of these are self-exlpanatory, like B&W, which converts any pixel it affects to a gray-scale equivalent. Others are more esoteric and reflect some of the more exciting things going on recently in Amiga graphics. Xor, for instance, will lean colors either toward gray or to their complement on the color wheel. For further enlightenment on these effects, do as the manual says and experiment. One point of interest about Paint, and the other two programs is that each is able to handle picture files that are limited, effectively, only by the amount of memory in your computer.

Colors

The Colors segment of PhotoLab an image-processing program that will add a whole new level of control to the images you work on. It is straightforward and easy to use. The Colors command screen takes up about three-quarters of the screen, allowing you to load and view a picture over the top as you manipulate it. If you need to see more of the picture, you can pull the command screen down or push it behind the picture with one keystroke.

The top section of the command screen is the color-statistics display. In this area you can see at a glance the exact RGB (Red, Green, Blue), HSV (Hue Saturation Value), or MCY (Magenta, Cyan, Yellow) values of any color in your picture. The statistics display will also give the Pixel Population count and Percentage of any color on screen. That means you can find out exactly how many pixels in the currently-loaded picture are of a given color, and what percentage of all the pixels in your picture are using that particular color. Finding the Pixel Population might be the first step in deciding whether a color register can be cleared for other use or eliminated altogether to reduce the number of bit-planes in a picture.

Beneath the statistics display is the Register Graph, which shows the relative content of a single color component in each of the 16 color registers. For example, if you select red, then each bar (representing one of the color registers) will show how much red is being used for that color register, relative to the other registers. This value can be displayed for each of the color component's RGB and HSV.

The registers can be locked against changes, sorted out by color component or population, and then altered by degree so that the color content, say, more red or less green, can be adjusted to refine the overall tone of your picture. This powerful tool will add a new dimension to the quality of your work. The real beauty of it is how intuitive it becomes after a little practice.

Other Colors functions include Match Palette, which allows you to change the palette of one picture to that of another, while preserving the picture's original appearance so that parts of each may then be used together. A function called Separate allows you to make color separations of a picture into its red, green, blue, magenta, cyan, yellow, and black components. Make B/W will do just that—make a black-and-white image from a full-color picture. Negative will make a reverse, or negative, image of your picture.

If you're not happy with the results of any of these changes, you can select Revert to reload your last picture file without having to go through the whole loading procedure.

Probably one of the most valuable functions of Colors is its ability to change the display mode of a picture. With the Set To option you can change pictures from any display mode to any other display mode. Change low resolution to HAM, or change HAM to Extra_HalfBrite. You can also select Resize to change the size of any picture to anything you want within your memory limitations. ►

Continued on p. 110





The Great Software Buyer's Guide

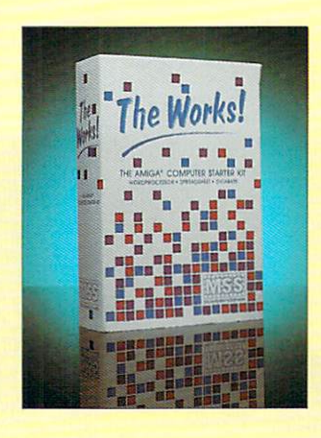
AMIGA PROGRAMS are like rabbits—lock a few in a room together for a year, and you will come back to find the room filled to bursting. Since last year's software buyer's guide, the program population has doubled. The Games were extremely prolific, practically tripling. The Graphics/Video family had plenty of new additions; fonts begat more fonts, and video effects were quite fruitful. A number of editor/librarian programs were created from the ribs of synthesizers, while composition programs created a number of riffs. The Music category swelled with new arrivals.

Before a program could be included in the buyer's guide, we needed a permission slip from its parent company. Our FAX and telephone lines are still vibrating from all the checking, rechecking, and re-rechecking of prices, descriptions, company names, and product names. Despite the exhaustive (exhaustion being our current state) confirmation process, you may find some discrepancies between our listings and your dealer's shelves. Prices, product names, and release dates are subject to change. Additions to and deletions from the market occur daily. We have tried to ease your frustration by listing only programs that will be available by the start of 1989. (Watch our new products column, What's New?, for future releases.) If a company had decided on a release date, but not a price, we listed NA (Not Available) in the Price column.

Business 20
Databases. 20
Desktop Publishing 21
Education 21
Games 24
Graphics/Video 36
Home/Personal Finance 44
Music/Sound 44
Programming 48
Spreadsheets 52
Telecommunications. 52
Utilities. 54
Word Processing. 56
Manufacturers' Addresses 58

Compiled by Barbara Gefvert and Jan Jackson

PHOTOGRAPHED BY LARRY DUNN



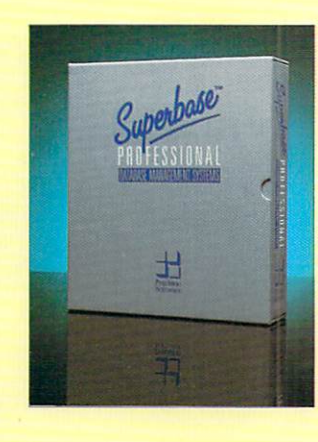
BUSINESS

PRODUCT	COMPANY	PRICE	DESCRIPTION
Accountant, The	KFS Software	$ 299.00	receivable/payable, general ledger, payroll, inventory
Accounting	Computerware	$ 99.00	$99 per module: AR, AP, GL, IC, PR, check ledger
AMT	The Other Guys	$ 39.99	amortization and cost evaluation
Arima Techniques	Lionheart Press Inc.	$ 95.00	Box-Jenkins analysis of time-series
B.E.S.T. Business Budgeter	B.E.S.T. Inc.	$ 79.95	budget for general ledger
B.E.S.T. Business Management	B.E.S.T. Inc.	$ 395.00	business accounting: payroll, inventory, ledger
B.E.S.T. Business Payroll	B.E.S.T. Inc.	$ 79.95	payroll package
B.E.S.T. General Ledger	B.E.S.T. Inc.	$ 79.95	ledger package
B.E.S.T. Plan/IT	B.E.S.T. Inc.	NA	spreadsheet
B.E.S.T. Present/IT	B.E.S.T. Inc.	NA	business presentation package
Business Statistics	Lionheart Press Inc.	$ 145.00	statistical tools for business
CCI Bottom Liner	Clockwork Computers Inc.	$ 349.00	accounting with payroll
CCI Integrated Merchandiser	Clockwork Computers Inc.	$ 599.00	point of sale, inventory, accounting, payroll
Cluster Analysis	Lionheart Press Inc.	$ 125.00	all major cluster analysis algorithms
Critic's Choice, The	The Disc Company	$ 249.95	KindWords, MaxiPlan 500, Microfiche Filer
Decision Analysis Techniques	Lionheart Press Inc.	$ 145.00	decisions on incomplete or conflicting data
Econometrics	Lionheart Press Inc.	$ 145.00	major techniques; based upon Johnson's
Experimental Statistics	Lionheart Press Inc.	$ 145.00	general purpose statistics
Exploratory Data Analysis	Lionheart Press Inc.	$ 85.00	analysis based upon median of data sets
Financial Plus	Equal Plus	$ 295.00	accounting package
Forecasting and Time-Series	Lionheart Press Inc.	$ 145.00	forecasting based on analysis of time-series
KEEP-Trak	The Other Guys	$ 49.99	general ledger
Linear and Non-Linear Programming	Lionheart Press Inc.	$ 95.00	based upon SIMPLEX and Monte Carlo techniques
Marketing Statistics	Lionheart Press Inc.	$ 145.00	collecting and analyzing marketing statistics
Matrix Operations	Lionheart Press Inc.	$ 95.00	matrix handling, eigen functions
Multivariate Analysis	Lionheart Press Inc.	$ 125.00	for advanced users; corollation and factor analysis
Nimbus I	Oxxi Inc.	$ 149.50	cash accounting for small businesses
Optimization	Lionheart Press Inc.	$ 145.00	different optimization programs
Panmead Businessware: Pack I	Panmead Limited	NA	invoicing & sales analysis, stock control, and more
Panmead Businessware: Pack II	Panmead Limited	NA	general ledger, purchase ledger
PAR Real I	PAR Software	$ 149.95	real estate property analysis
Project Planner	Lionheart Press Inc.	$ 145.00	PERT and Critical Path techniques, scheduling
Quality Control and Ind. Experiment	Lionheart Press Inc.	$ 145.00	statistical basis of quality control
Rags to Riches	Chang Labs	$ 499.50	ledger, payables, receivables; $199.95 each
Regression	Lionheart Press Inc.	$ 95.00	all major regression techniques
Sales and Market Forecasting	Lionheart Press Inc.	$ 145.00	develop a forecast using company time-series
Works! Platinum Edition, The	Micro-Systems Software	$ 295.00	word processor, spreadsheet, telecomm., database
Works!, The	Micro-Systems Software	$ 199.95	integrates Scribble!, Analyze! and Organize!

DATABASES

PRODUCT	COMPANY	PRICE	DESCRIPTION
Acquisition	Taurus Software	$ 299.95	relational database
Amiga Grid File	TDI Software Inc.	$ 49.95	file manager includes source code
Computer Black Book	Meggido Enterprises	$ 35.95	name, address and phone database
Database 4	MicroSearch	$ 69.95	four database applications for home inventory
Datamat A-200	Transtime Technologies	$ 249.95	relational database
Datamat A-300	Transtime Technologies	$ 349.95	relational database with regression analysis
DataRetrieve	Abacus	$ 79.95	accesses eight files simultaneously

dBMAN IV	VersaSoft	$ 249.95	relational with relational on-screen generator
Flex File Amiga	Cardinal Software	$ 59.95	data manager with report writer
Info +	Eastern Telecom Inc.	$ 49.99	file manager
Infominder	Byte by Byte	$ 89.95	hierarchical data retrieval system
Microbase	Anco	$ 44.95	database
Microfiche Filer	Software Visions	$ 99.00	file manager, graphic interface
Microfiche Filer Plus	Software Visions	$ 179.00	microfiche-style pro. database with ARexx support
Multi-Manager	VersaSoft	$ 299.95	data manager for multiple store, point-of-sale use
norgen	Norris Software Ltd.	$ 79.95	genealogical database
Omega File	The Other Guys	$ 79.99	file manager
Organize!	Micro-Systems Software	$ 79.95	dBase-compatible, math functions
Professional DataRetrieve	Abacus	$ 295.00	professional, relational version of DataRetrieve
Professional Multi-Manager	VersaSoft	$ 399.95	advanced Multi-Manager database
Rolobase Plus	Equal Plus	$ 39.95	name-and-address file
SoftWood File IIsg	SoftWood Company	$ 99.95	file manager includes graphics and sound
Superbase Personal	Precision Incorporated	$ 79.95	file manager
Superbase Personal II	Precision Incorporated	$ 149.95	with mail merge, telecomm., text editing, more
Superbase Professional 4.01	Precision Incorporated	$ 349.95	relational database
Video Cataloger	SunSmile Software	$ 29.95	keeps track of your video collection
Your Family Tree	MicroMaster Inc.	$ 49.95	genealogy database

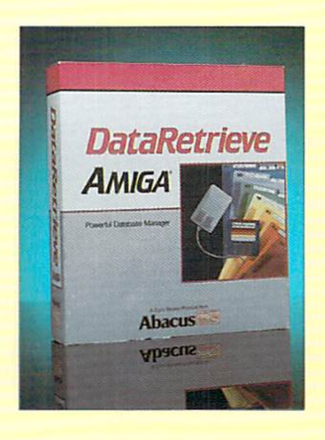


DESKTOP PUBLISHING

PRODUCT	COMPANY	PRICE	DESCRIPTION
AmigaTEX	Radical Eye Software	$ 200.00	typesetting system with math and technical
City Desk 2.0	MicroSearch	$ 199.95	page-layout program with PostScript support
ComicSetter	Gold Disk	$ 99.95	comic-book design studio
Infinity Five-Pack of Fonts	Infinity Software	$ 59.95	5-set disk of fonts optimized for desktop publishing
PageSetter	Gold Disk	$ 149.95	entry-level page-layout system
Professional Color Separator	Gold Disk	$ 195.00	color separations for Professional Page
Professional Page	Gold Disk	$ 395.00	high-end/professional desktop publishing
Publisher Plus	Northeast Software Group	$ 99.95	PostScript-compatible WYSIWYG desktop publishing
Publisher's Choice, The	The Disc Company	$ 199.95	KindWords 2.0 and PageSetter with clip art
Publishing Partner Professional	Soft Logik	$ 199.95	desktop publishing with PostScript support
Shakespeare	Infinity Software	$ 225.00	color desktop-publishing program

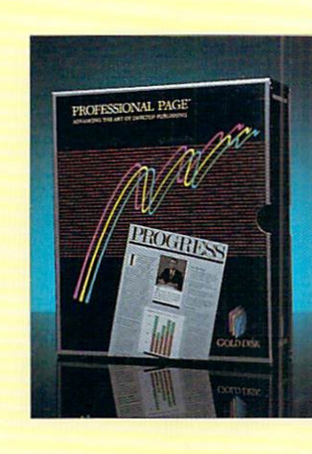
EDUCATION

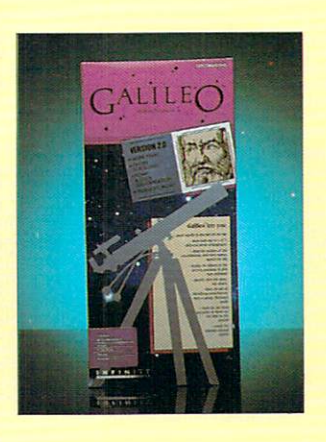
PRODUCT	COMPANY	PRICE	DESCRIPTION
Abraham, Friend of God	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Across the Plains	Micro Ed Inc.	$ 59.95	westward migration, two disks
Adam and Eve	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Adventures of Sinbad, The	Unicorn Software	$ 49.95	classic literature reading comp. for 9-y-o-up
Aesop's Fable	Unicorn Software	$ 49.95	stories with morals
AIDS Information Game	Micro Ed Inc.	$ 29.95	high-school through adult
Algebra	True BASIC Inc.	$ 49.95	fundamentals of Algebra
All About America	Unicorn Software	$ 59.95	social studies
American History Adventure	Queue	$ 59.95	identify historical persons; grades 7–12
Analogies I	Queue	$ 65.00	SAT prep
Analogies II	Queue	$ 65.00	SAT prep



Antonyms	Queue	$ 34.95	high-school level; SAT prep
Antonyms	Micro Ed Inc.	$ 29.95	learn words with opposite meanings
Basic Grammar	Micro Ed Inc.	$ 29.95	grammar tutor
Beginning Reading Skills	Micro Ed Inc.	$ 89.95	four disks
Biology By Martha: Animals	Lee Software	$ 39.00	high-school and college levels
Biology By Martha: Complete	Lee Software	$ 99.00	entire Biology By Martha series
Biology By Martha: Human Biology	Lee Software	$ 39.00	high-school and college levels
Biology By Martha: Microbiology	Lee Software	$ 39.00	high-school and college levels
Biology By Martha: Plants	Lee Software	$ 39.00	high-school and college levels
Biology By Martha: Reproduction	Lee Software	$ 39.00	high-school and college levels
Birds 'N Bees	IntraCorp	$ 14.95	facts-of-life instruction
Boomeraid	TSA Media	NA	use math skills to win the game
Calculus	True BASIC Inc.	$ 49.95	first course in Calculus
Capitalization	Micro Ed Inc.	$ 29.95	grammar tutor
CLAS (Computerized Lesson Authoring)	Micro Ed Inc.	$ 99.95	create interactive lessons with simple commands
College Aptitude Reading Comp.	Queue	$ 65.00	SAT prep
Comprehensive Grammar Review I	Queue	$ 54.95	grades 7-12, includes textbook
Comprehensive Grammar Review II	Queue	$ 54.95	grades 7-12, includes textbook
Decimal Dungeon	Unicorn Software	$ 49.95	answer decimal problems right to escape the dungeon
Discovery	MicroIllusions	$ 39.95	math or spelling versions, space adventure
Discovery Data Disks	MicroIllusions	$ 19.95	science, math concepts, geography, etc.
Discrete Math	True BASIC Inc.	$ 49.95	math for computer scientists
Dream is Alive, The	Tech Soft	$ 19.99	space-shuttle slide show
Early Great Lakes Fur Trade	Micro Ed Inc.	$ 79.95	three disks plus book
Early Math	Micro Ed Inc.	$ 49.95	grades K-1
Eighth Grade Reading Comprehension	Queue	$ 65.00	60 lessons
Elementary Social Studies Vocab.	Micro Ed Inc.	$ 29.95	beginning social studies
FaceMaker, Golden Edition	Spinnaker	$ 39.95	ages 3-8 learn basic computer skills
First Christmas, The	Micro Ed Inc.	$ 29.95	Bible studies, includes book
First Letters and Words	First Byte	$ 49.95	letter identification
First Shapes	First Byte	$ 49.95	shape identification for preschoolers
Fraction Action	Unicorn Software	$ 49.95	use knowledge of fractions to escape the dungeon
French Grammar I	Queue	$ 34.95	nouns, articles, some irregular verbs
French Grammar II	Queue	$ 34.95	adjectives, interrogatives, partitive article
French Grammar III	Queue	$ 34.95	conjugation, regular verbs, imperative
Galileo 2.0	Infinity Software	$ 69.95	astronomy program; desktop observatory
Genesis-Deuteronomy	John 1:1 Graphics	$ 34.95	Bible on disk
Geographic Database	George Bailey	$ 15.00	geography information base about Australia
Ghostly Grammar	Unicorn Software	$ 49.95	instruction in the basic rules of grammar
Good Samaritan, The	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Grade Manager	Associated Computer Ser.	$ 89.95	electronic gradebook
Halley Project, The	Thunder Mountain	$ 9.95	learn about the solar system
Homynyms	Micro Ed Inc.	$ 29.95	distinguish sound-alike words with different spellings
How A Bill Becomes Law	Queue	$ 49.95	usher a bill through Congress; grades 7 and up
How to Spell	Queue	$ 39.95	grades 4-7
In the Beginning	Micro Ed Inc.	$ 29.95	Bible studies, includes book
In the Promised Land	Micro Ed Inc.	$ 89.95	Bible studies for adults, five disks plus book
IntelliType	Electronic Arts	$ 49.95	typing tutor for adults
Introducing Maps	Micro Ed Inc.	$ 59.95	two disks
Job-Songs of Solomon	John 1:1 Graphics	$ 19.95	Bible on disk
Keyboard Cadet	Thunder Mountain	$ 39.95	typing tutor
Kid Talk	First Byte	$ 49.95	talking word processor for children
Kinderama	Unicorn Software	$ 49.95	five early learning games
Kwik-Speak I	Eclipse Data Management	$ 49.95	beginning and intermediate Spanish
Land of the Unicorn	Unicorn Software	$ 59.95	a variety of educational activities
Learning Curve	Associated Computer Ser.	$ 79.95	create quizzes
Learning English as a Second Lang.	Micro Ed Inc.	$ 189.95	12 disks
Learning the Alphabet	Micro Ed Inc.	$ 29.95	preschool
Lessons in Reading and Reasoning 1	Queue	$ 39.95	grades 9 and up, shifty-word, circular fallacy
Lessons in Reading and Reasoning 2	Queue	$ 39.95	grades 9 and up, inadequate data, red herrings

Lessons in Reading and Reasoning 3	Queue	$ 39.95	grades 9 and up, stereotyping, fallacies
Lessons in Reading and Reasoning 4	Queue	$ 59.95	grades 9 and up, sexism fallacy, proverbs
Lessons in Reading and Reasoning	Queue	$ 149.95	Reading and Reasoning volumes 1–4
Lewis and Clark Expedition	Micro Ed Inc.	$ 89.95	with digitized pictures, five disks
Linkword Languages	Artworx	$ 29.95	learn foreign languages
Logic Lab	VS Graphics	$ 29.95	teaches digital logic for circuit building
Logic Master, The	Unicorn Software	$ 49.95	solve analogy and number-series problems
Magical Myths	Unicorn Software	$ 49.95	mythology
Making Our Constitution	Micro Ed Inc.	$ 79.95	four disks
MasterType	Mindscape	$ 39.95	typing tutor
Match-it	The Other Guys	$ 39.99	pattern recognition
Math Talk	First Byte	$ 49.95	talking math tutor
Math Talk Fractions	First Byte	$ 49.95	talking fraction tutor
Math Wizard	Unicorn Software	$ 49.95	four games that teach math skills
Math-A-Magician	The Other Guys	$ 39.99	learn math
Math-Amation	Progressive Peripherals	$ 79.95	advanced math program, scientific calculator
Mavis Beacon Teaches Typing	Software Toolworks	$ 49.95	typing tutor
Medal Winner	Micro Ed Inc.	$ 29.95	multiplication game for grades 4–8
Miniature Math	Learners Image	$ 39.95	miniature golf game teaches math
Music Student I	Associated Computer Ser.	$ 59.95	learn fundamentals of music
Music Student II	Associated Computer Ser.	$ 59.95	over 100 lessons in melody, rhythm, harmony
New Tech Coloring Book	Software Toolworks	$ 19.95	color IFF pictures
New Testament	John 1:1 Graphics	$ 39.95	Bible on disk
Percentage Panic	Unicorn Software	$ 49.95	learn to use percents
Perfect Score, The	Mindscape	$ 79.95	improve skills for SAT test; grades 10–12
Phonics Fun	Unicorn Software	$ 49.95	develops language skills
Pinball IQ	Micro Ed Inc.	$ 29.95	division game for grades 3–8
Planet Probe	Micro Ed Inc.	$ 29.95	learn about the solar system via arcade-style play
Planetarium	MicroIllusions	$ 69.95	astronomy program
Practical Composition I	Queue	$ 44.95	Making Words Work; high-school level
Practical Composition II	Queue	$ 54.95	Logical, Clear Sentences; high-school level
Practical Composition III	Queue	$ 44.95	Selecting The Best Approach; high-school level
Practical Composition IV	Queue	$ 44.95	Making Sentences Work; high-school level
Practical Composition V	Queue	$ 44.95	Using Words Correctly; high-school level
Practical Compostition Pkg I	Queue	$ 144.95	Practical Composition volumes I–III
Practical Compostition Pkg II	Queue	$ 144.95	Practical Composition volumes IV–V
Practical Composition Series	Queue	$ 229.95	all five in the series
Practical Vocabulary	Queue	$ 54.95	high-school level
Pre-Calculus	True BASIC Inc.	$ 49.95	secondary-school level
Probability	True BASIC Inc.	$ 49.95	teaches probability theory
Punctuation	Micro Ed Inc.	$ 29.95	grammar tutor
Read & Rhyme	Unicorn Software	$ 49.95	four language arts activities
Read-a-Rama	Unicorn Software	$ 49.95	reading game
Reading Adventure I: Ponies/Friends	Queue	$ 39.95	grades 2–3
Reading Adventure II: Music Box	Queue	$ 59.95	grades 4–5
Reading Adventure III: Siblings	Queue	$ 59.95	grades 6–8
Reading Adventure Series	Queue	$ 130.00	Reading Adventure levels I–III; grades 2–8
Reading and Thinking I	Queue	$ 54.95	grades 2 and 3
Reading and Thinking II	Queue	$ 54.95	grades 4 and 5
Reading and Thinking III	Queue	$ 54.95	grades 6–8
Robot Readers: Aesop's Fables	Hilton Android Corp	$ 29.95	expand vocabulary and improve reading ability
Robot Readers: Chicken Little	Hilton Android Corp	$ 29.95	expand vocabulary and improve reading ability
Robot Readers: Little Red Hen	Hilton Android Corp	$ 29.95	expand vocabulary and improve reading ability
Robot Readers: The Ugly Duckling	Hilton Android Corp	$ 29.95	expand vocabulary and improve reading ability
Robot Readers: Three Little Pigs	Hilton Android Corp	$ 29.95	expand vocabulary and improve reading ability
Senor Tutor	Finally Technologies	$ 69.95	talking spanish-language tutorial
Sentence Completion	Queue	$ 44.95	grades 9 and up
Smooth Talker	First Byte	$ 49.95	text to speech program
Space Math	IntraCorp	$ 14.95	math concepts game
Space Photos II	Signs Etc. by D. Knox	$ 19.95	pictorial history of the US space program



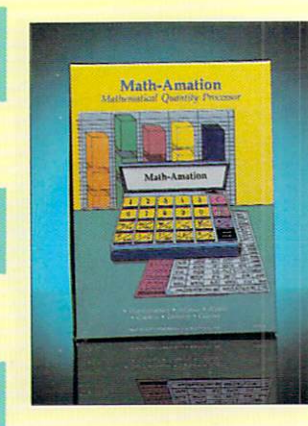


Spanish Grammar I	Queue	$ 34.95	nouns, articles, regular verbs
Spanish Grammar II	Queue	$ 34.95	adjectives, pronouns
Spanish Grammar III	Queue	$ 34.95	preterit tense, superlatives
Spellbound	Learners Image	$ 39.95	spelling instruction, drill, and practice
Speller Bee	First Byte	$ 49.95	spelling tutor
Spelling Detective Game	Micro Ed Inc.	$ 39.95	spelling fun
Spelling Level 2	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 3	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 4	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 5	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 6	Micro Ed Inc.	$ 29.95	learn to spell
Starting A New Business	Queue	$ 59.95	simulation
Sum-It Mountain	Micro Ed Inc.	$ 29.95	addition game for grades 1-8
Tales of the Arabian Nights	Unicorn Software	$ 49.95	classic literature
Talking Coloring Book, The	JMH Software	$ 29.95	color recognition
Talking Storybook Stories	Designing Minds Inc.	$ 29.95	story disk for use with The Talking Storybook
Talking Storybook, The	Designing Minds Inc.	$ 39.95	reading program for all ages
Transcontinental Railroad	Micro Ed Inc.	$ 39.95	connecting the coasts
Trigonometry	True BASIC Inc.	$ 49.95	teaches trig
True Stat	True BASIC Inc.	$ 49.95	statistics
Typing Tutor + Word Invaders	Academy Software	$ 34.95	typing instruction and practice via game play
U.S. Geography Adventure	Queue	$ 59.95	travel the U.S.
Uncle D's ConSOUNDtration	AlohaFonts	$ 39.95	memory drills for ages 4 and up
Uncle D's ConSOUNDtration Data Disk	AlohaFonts	$ 24.95	pictures and sounds for use with Uncle D's above
Vocabulary Adventure I	Queue	$ 59.95	grades 6-8
Vocabulary Adventure II	Queue	$ 59.95	grades 8-10
Vocabulary Adventure III	Queue	$ 59.95	grades 10-12
Vocabulary Series	Micro Ed Inc.	$ 49.95	high school through adult
Wonders of the Animal Kingdom	Unicorn Software	$ 49.95	six educational activities
Word Demons	Micro Ed Inc.	$ 29.95	word usage
Word Master Vocabulary Builder, The	Unicorn Software	$ 49.95	learn new words
Word Master Vocabulary Disk	Unicorn Software	$ 19.95	data disk for use with The Word Master
World Atlas	Starvision International	$ 49.95	geographical information
World Geography Adventure I	Queue	$ 59.95	The Americas
World Geography Adventure II	Queue	$ 59.95	Europe
World Geography Adventure III	Queue	$ 59.95	Africa
World Geography Adventure IV	Queue	$ 59.95	Asia
World History Adventure	Queue	$ 59.95	identify historical figures

GAMES

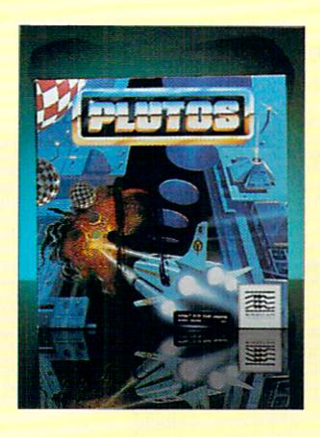
PRODUCT	COMPANY	PRICE	DESCRIPTION
4 x 4 Off Road Racing	Epyx	$39.95	select your vehicle and drive in the mud
4-In-One: Easy But Fun	Polyglot Software	$29.95	SlotCars, CircuitMania, ShufflePuzzle, Follow
4th and Inches	Accolade	$44.95	football simulation
A Mind Forever Voyaging	Infocom	$14.95	text adventure, mail order only
Aaargh!	Arcadia	$39.95	role-playing arcade
Adventure Construction Set	Electronic Arts	$19.95	make your own adventures
Age of Sail	Conflict Recreations	$39.95	naval battles, online support for 2-40 players
Airball	Microdeal	$39.95	save the wizard
Alien Fires-2199 AD	Paragon Software	$39.95	interactive adventure
Alien Syndrome	Sega	$49.95	arcade; rescue comrades from aliens
Alternate Reality: The City	DataSoft	$39.95	role-playing adventure
Amegas	DigiTek	$34.95	Breakout-style arcade game with 40 levels
Amiga Biorhythm	Astrosoft	$19.95	makes biorhythm charts

Android Decision, The	DataSoft	**$34.95**	sci-fi strategy
Andromeda Mission	Demonware	**$39.95**	arcade
Annals of Rome	DataSoft	**$34.95**	empire building
Aquaventura	Psygnosis Ltd.	**$39.95**	aquatic fun
Arazok's Tomb	Aegis	**$39.95**	illustrated adventure
Arcticfox	Electronic Arts	**$39.95**	arcade tank game
Arena	Psygnosis Ltd.	**$19.95**	track and field events
Arkanoid	Discovery Software	**$29.95**	Breakout-style arcade game with 66 levels
Art of Chess, The	Anco	**$34.95**	mouse-controlled chess
Autoduel	Origin Systems	**$39.95**	based on Road Warrior
Awesome Arcade Action Pack	Arcadia	**$49.95**	3 arcade games: Xenon, Sidewinder, Blastaball
Balance of Power	Mindscape	**$49.95**	geopolitical strategy
Ballyhoo	Infocom	**$14.95**	text adventure, mail order only
Barbarian	Psygnosis Ltd.	**$39.95**	interactive graphic adventure
Bard's Tale	Electronic Arts	**$49.95**	role-playing adventure
Bard's Tale II: The Destiny Knight	Electronic Arts	**$59.95**	role-playing adventure
Battle Chess	Interplay	**$49.95**	chess pieces engage in mortal combat
BattleDroidz	DataSoft	**$34.95**	action/strategy combat
Battleship	Epyx	**$39.95**	based on the board game
Better Dead than Alien	Discovery Software	**$34.95**	space adventure
Beyond Zork	Infocom	**$49.95**	illustrated adventure with on-screen map
Bingo Parlor	Silver Software	**$19.95**	one to ten players
Black Lamp	Rainbird Software	**$24.95**	graphics adventure
Black Shadow	Scorpion Software	**$34.95**	arcade-style shoot-and-bomb-'em game
Blackjack Academy	MicroIllusions	**$39.95**	teaches and plays
Blitzkrieg at the Ardennes	Command Simulations	**$52.95**	Battle of the Bulge simulation
Blockbuster	Mindscape	**$39.95**	Breakout-style arcade game
Bomb Busters	ReadySoft	**$29.95**	arcade
Bowling	Silver Software	**$19.95**	arcade game
Breach	Omnitrend Software	**$39.95**	tactical squad combat game
Bridge 5.0	Artworx	**$34.95**	contract bridge game
Bubble Bobble	Taito	**$39.95**	bubble bursting
Bubble Ghost	Accolade	**$34.95**	arcade; blow a bubble through obstacle-laden chambers
Bureaucracy	Infocom	**$14.95**	text adventure, mail order only
California Games	Epyx	**$39.95**	fun in the sun with 8 games
Capone	Actionware	**$39.95**	phaser-gun-compatible arcade shoot-'em-up
Captain Blood	Mindscape	**$49.95**	find 5 clones before they destroy you
Carlos Monte's 7-card Nopeekie	Erisian Software Products	**$19.95**	poker-style casino game
Carlos Monte's Blackjack/Solitaire	Erisian Software Products	**$29.95**	blackjack and Klondike (Canfield)
Carlos Monte's High-Rolling Craps	Erisian Software Products	**$19.95**	full craps implementation with all casino options
Carrier Command	Rainbird Software	**$44.95**	strategy/arcade resolve the energy crisis
Casino Fever	ETHOS Development	**$39.95**	roulette, blackjack, poker, and craps
Casino Roulette	J C Beauchamp	**$19.95**	computer roulette
Centerfold Squares	Artworx	**$29.95**	win a peek at your computer opponent
Championship Baseball	Mediagenic	**$39.95**	baseball simulation
Championship Basketball	Mediagenic	**$44.95**	two-on-two basketball game
Championship Golf	Mediagenic	**$39.95**	golf simulation
Chessmaster 2000	Software Toolworks	**$44.95**	chess game
Christmas Carol, A	Jumpdisk	**$ 4.00**	text, screen display, printing, speech, slides
Chrono-Quest	Psygnosis Ltd.	**$49.95**	time-travel adventure
City Defense	Kingsoft	**$19.95**	arcade; defend cities from laser
Clever & Smart	DigiTek	**$34.95**	graphics adventure based on comic strip
Combat Zone	Keypunch Software	**$14.99**	arcade tank and helicopter combat
Computer Scrabble	Virgin Games	**$39.95**	computer version of the crossword board game
Contra	Konami	**$39.95**	arcade; fight the Red Falcon
Corruption	Rainbird Software	**$44.95**	illustrated text adventure
Cosmic Bouncer	ReadySoft	**$29.95**	arcade
Cosmic Relief	DataSoft	**$34.95**	graphics-intensive action adventure
Craps Academy	MicroIllusions	**$39.95**	learn and play craps
Crazy Cars	Titus Software	**$39.95**	drive 4 fast cars on 6 race courses





Creature	Actionware	$39.95	phaser-gun-compatible space arcade
Crimson Crown, The	Polarware Software	$19.95	illustrated adventure
Crosslinks	Poco Loco	$34.95	word-find games for all ages
Crossword Creator	Polyglot Software	$49.95	40,000 + word dictionary
Crystal Hammer	Reline Software	$19.95	Breakout-style arcade game
CubeMaster	ASDG	$24.95	shoot-'em-up strategy
Cutthroats	Infocom	$14.95	text adventure, mail order only
Cyber Complex	DigiTek	$34.95	graphics adventure set in 21st-century
Dark Castle	Three-Sixty	$39.95	arcade action
Deadline	Infocom	$ 9.95	text adventure, mail order only
Death Sword	Epyx	$39.95	arcade-style sword battle
Deep Space	Psygnosis Ltd.	$29.95	arcade
Defcon-5	Cosmi	$39.95	Strategic Defense Initiative simulation
Defender of the Crown	Cinemaware	$49.95	strategy/arcade game set in medieval England
Deja Vu	Mindscape	$49.95	illustrated text adventure
Destroyer	Epyx	$39.95	command a warship
Detonator	Demonware	$39.95	Breakout-style arcade game
Diablo	Classic Compu	$29.95	strategy maze game
Distant Armies: A Playing History	Eagle Tree Software	$44.95	10 different ancient chess games
Doctor Morbid	Incognito Software	$39.95	mad scientist maze game
Dominoes	Polyglot Software	$24.95	board game
Double Dragon	Arcadia	$39.99	arcade
Downhill Challenge	Broderbund Software	$29.95	ski-racing simulation
Dr. Xes	Finally Technologies	$39.95	dialogue with a computerized psychoanalyst
Dragon's Lair	ReadySoft	$59.95	arcade; 6 digitized disks based on laser-disk game
Dream Zone	Baudville	$49.95	graphic adventure
Dungeon Construction	MicroIllusions	$39.95	build a dungeon game
Dungeon Master	FTL	$39.95	real-time fantasy role-playing adventure
Earl Weaver Baseball	Electronic Arts	$49.95	baseball strategy
Earl Weaver Baseball Data Disk	Electronic Arts	$19.95	data on 1986 major-league teams
Ebonstar	MicroIllusions	$34.95	arcade space game
Echelon	Access Software	$44.95	3-D space-flight simulator; C104 Tomahawk
Emerald Mine	Kingsoft	$19.95	arcade puzzle
Emetic Skimmer	Snake Design Software	NA	arcade, four-directional scrolling
Empire	Interstel	$49.95	strategy: interplanetary imperialism
Enchanter	Infocom	$14.95	text adventure, mail order only
Enchanter Trilogy	Infocom	$29.85	Enchanter, Sorcerer, and Spellbreaker
Enlightenment	Rainbird Software	$24.95	arcade strategy
Excaliber	Anco	$24.95	arcade
F/A-18 Interceptor	Electronic Arts	$49.95	combat-flight simulator
Face Off	Anco	$24.95	ice hockey simulation
Faery Tale Adventure, The	MicroIllusions	$49.95	interactive adventure
Famous Course Disk: Volume II	Accolade	$19.95	more courses for the Mean 18 golf game
Ferrari Formula One	Electronic Arts	$49.95	racing simulation
Feud	Mastertronic International	$19.99	cast spells in magic battle with wizards
Final Assault	Epyx	$39.95	mountain climbing
Final Mission	DigiTek	$29.95	futuristic labyrinth of terror; over 20 levels
Financial Time Machine, The	INSIGHT/Lehner Comm.	$39.95	trade stocks through history
Fire and Forget	Titus Software	$39.95	3 levels of 6 conflicts; 1 or 2 players per team
Firepower	MicroIllusions	$24.95	arcade tank game, can be used over modem
Firezone	DataSoft	$34.95	21st-century warfare
First Expedition	Interstel	$49.95	strategy adventure
Flight Path 737	Anco	$24.95	passenger-carrier flight simulation
Flight Simulator II	subLOGIC	$49.95	flight simulator
Formula One Grand Prix Racing	StarSoft Development	$29.95	car-racing game
Fortress Underground	Constellation Software	$19.95	search-and-destroy via helicopter
Foundations Waste	Scorpion Software	$34.95	arcade shoot-'em-up
Frostbyte	StarSoft Development	$29.95	arcade
Galactic Invasion	MicroIllusions	$24.95	space battle
Galaxy Fight	Snake Design Software	$29.95	arcade



Ganymed	ReadySoft	$29.95	arcade
Gauntlet	Mindscape	$49.95	arcade dungeons
Gee Bee Air Rally	Mediagenic	$39.95	airplane race
Gettysburg: The Turning Point	Strategic Simulations	$59.95	re-creation of the Gettysburg battle
GFL Championship Football	Mediagenic	$44.95	arcade football game
Global Commander	DataSoft	$39.95	international strategy
Gnome Ranger	Constellation Software	$19.95	graphics adventure
Go for the Amiga	Infinity Software	$49.95	oriental strategy board game
Gold of the Realm	Magnetic Images	$39.95	graphic adventure
Gold Runner	Microdeal	$39.95	arcade
Golden Path	Rainbird Software	$44.95	animated adventure
Golden Pyramid, The	Micro Entertainment	$19.95	Wheel-of-Fortune type game with 1000 puzzles
Gone Fish'n	Interstel	$44.95	computerized fishing
Grand Slam	Infinity Software	$49.95	tennis game
Great States II	Designing Minds Inc.	$39.95	geographically-educational game
Grid Start	Anco	$24.95	auto-racing game
Gridiron	Bethesda Softworks	$39.95	real-time football action/strategy
Guild of Thieves	Rainbird Software	$44.95	illustrated adventure
GunShoot	DigiTek	$34.95	arcade adventure; duel with a bank robber
Hardball	Accolade	$44.95	arcade baseball
Harpoon	Three-Sixty	$44.95	naval task-force war simulation
Harrier Combat Simulator	Mindscape	$49.95	fly the Harrier jump jet
Harrier Mission	Anco	$24.95	vertical flight simulation
Head Coach 2.0	MicroSearch	$49.95	football simulation
Heavy Metal Modern Land Combat	Access Software	$44.95	war simulation with arcade and strategy elements
Heroes of the Lance	Strategic Simulations	$39.95	action
Hex	Mark of the Unicorn	$39.95	arcade/strategy game
Hitchhikers Guide to the Galaxy	Infocom	$14.95	text adventure
Hole-In-One Miniature Golf	DigiTek	$39.95	72 holes on 4 courses
Hollywood Hijinx	Infocom	$14.95	text adventure, mail order only
Hollywood Poker	DigiTek	$34.95	strip poker game with digitized photos
Honeymooners, The	First Row Software	$39.95	multilateral role-playing comedy
Hunt for Red October, The	DataSoft	$49.95	submarine simulation: based on the book
Hybris	Discovery Software	$39.95	arcade shoot-'em-up
I Ludicrus	Scorpion Software	$34.95	Roman colosseum fighting
Impossible Mission	Epyx	$39.95	arcade-action puzzle/strategy
Infidel	Infocom	$9.95	text adventure, mail order only
Insanity Fight	Microdeal	$39.95	space battle
Interaction	IntraCorp	$99.95	Dr. Joyce Brothers' advice, analysis
Interaction: Analysis Module	IntraCorp	$59.95	analysis module from Interaction
Interaction: Compatibility Module	IntraCorp	$59.95	compatibility module from Interaction
International Soccer	Microdeal	$39.95	soccer game
Island of Lost Hope	Digital Concepts	NA	graphic adventure
Jack Nicklaus' Greatest 18 Holes of Golf	Accolade	$49.95	play against a computerized Jack Nicklaus
Japan	subLOGIC	$24.95	scenery disk for use with Jet
Jet	subLOGIC	$49.95	jet simulation
Jinxter	Rainbird Software	$44.95	illustrated text adventure
Joe Blade	DigiTek	$34.95	adventure; rescue prisoners from enemy camp
Kampfgruppe	Strategic Simulations	$59.95	WWII tank warfare
Karate Kid II	Microdeal	$39.95	martial arts game
Karate King	Constellation Software	$19.95	karate combat
Karting Grand Prix	Anco	$24.95	go-kart racing
Kickstart II	Mastertronic International	$19.99	dirt-bike racing on 5 courses
King of Chicago	Cinemaware	$49.95	strategy/arcade set in prohibition era
Kingdoms of England	Incognito Software	$39.95	strategy adventure
Kings Quest I	Sierra On-Line	$49.95	illustrated adventure
Kings Quest II	Sierra On-Line	$49.95	illustrated adventure
Kings Quest III	Sierra On-Line	$49.95	illustrated adventure
Knight Orc	Rainbird Software	$44.95	illustrated adventure
Land of the Legends	MicroIllusions	$49.95	interactive adventure

Brown Wagh

SPOTLIGHT ON MUSIC

MIDI Magic

Developed By Circum Design

Remember your first tune on the kazoo? Or your recital after countless piano lessons? Could they have used some fine tuning?

Welcome to the exciting world of MIDI recording. Now you can blend all kinds of synthesized, sampled and live sounds into one magnificent composition. Beethoven, watch out!

MIDI Magic is a ***MIDI sequencer***; it helps you record, playback, edit, and organize the MIDI data generated by your playing. When you strike a key on the synthesizer, it is recorded, When you turn a dial, it is recorded. When you slide a slider, that's right — it is recorded. Want to change tempo? Add a melody? Switch keys? It's a breeze.
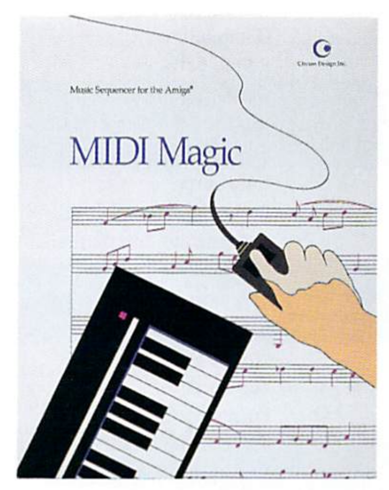
MIDI Magic provides a basic studio setup without complexity and extra expense. It excels in four areas — sound quality, features, Amiga utilization, and user interface.

Uninterrupted Music

To ensure uninterrupted music output, **MIDI Magic** gives top priority to the music. No matter what you are doing on the screen or with other multitasking applications, your music will always be rock steady.

Impressive Features

One sequencer cannot be all things to all musicians, however, **MIDI Magic**'s impressive list of features will provide a good, usable MIDI environment. Key features include multichannel simultaneous recording, 480 PPQN resolution, 4-mode quantization,



multiple time signatures, as well as realtime, modular or step modes. You can record any type of MIDI data onto 16 tracks with up to 26 sequences!

Truly Amiga

With color, windows, gadgets and pull-down menus, **MIDI Magic** looks and feels like an Amiga sequencer. You can use the mouse or keyboard for control. Screen resolution can be changed from medium to high, on the fly, if you want to show more windows on the same screen. And guess what — the HELP key actually brings up help screens for any function!

Outstanding Interface

Most importantly, **MIDI Magic**'s user interface is outstanding. It works just like a tape recorder, with Play, Record, Pause, Rewind and Fast Forward controls. If you've used a tape deck, you can start using MIDI Magic almost immediately. There are lots of extra touches, too. Like the "Don't Panic" gadget which will kill a stuck note on the MIDI device. Or the memory fuel gauge which will warn you of memory shortage. Then there's the colorful metronome which moves across the menu bar in time with the beat. Best of all, the Magic Wand mouse pointer bestows upon you creative power!

Take a close look at **MIDI Magic**. Watch it improve your creative music making. Go ahead, have some fun.

ORDER TODAY — **30 Day Guarantee!**

YES! I want Midi Magic with a 30 day guarantee! I've enclosed $149.95 plus $5. for shipping & handling. (California residents add sales tax.) Send this order form with check or credit card information to Brown-Wagh. For immediate order call 800-451-0900 (in CA call 408-395-3838).

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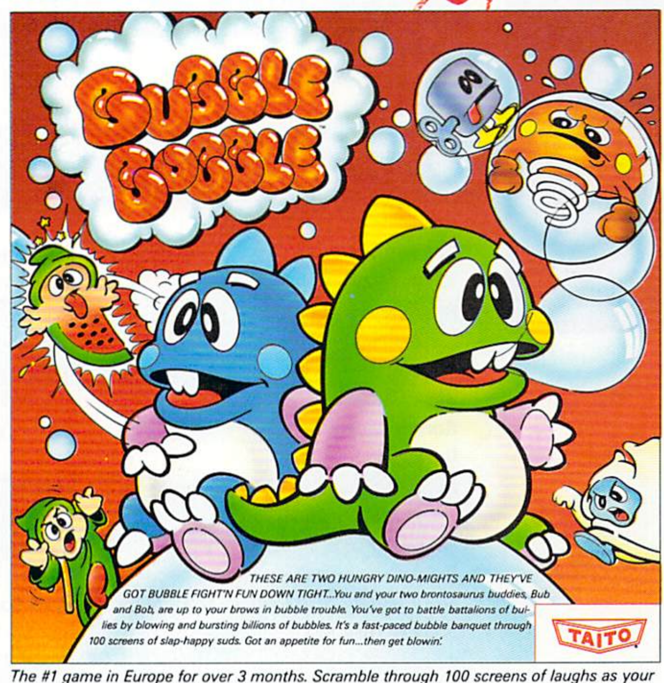


Larrie and the Ardies	Constellation Software	**$19.95**	arcade
Las Vegas	Anco	**$24.95**	play slots, high or low, and blackjack
Leader Board	Access Software	**$39.95**	golf simulation
Leather Goddess of Phobos	Infocom	**$14.95**	text adventure
Leatherneck	Microdeal	**$39.95**	arcade
Legend of Sleepy Hollow, The	Jumpdisk	**$ 4.00**	text, screen display, printing, speech, slides
Leisure Suit Larry	Sierra On-Line	**$39.95**	role-playing
Leviathan	Thunder Mountain	**$ 9.95**	space shoot-'em-up
Lottery Assistant	Classic Compu	**$39.95**	lottery number generator
Lottery Magic	Slipped Disk	**$24.95**	increase your odds with data on legal lotteries
Love Quest, The	IntraCorp	**$59.95**	determines compatibility between persons
Lurking Horror, The	Infocom	**$39.95**	text adventure with sound
Mad Libs	First Byte	**$19.95**	fill-in-the-blanks stories
Mainframe	MicroIllusions	**$39.95**	arcade; defeat the super computer
Maniax	Anco	**$24.95**	arcade
Marble Madness	Electronic Arts	**$49.95**	based on popular arcade game
Master Ninja: Shadow Warrior	Paragon Software	**$39.95**	action/adventure
Mean 18	Accolade	**$44.95**	golf simulation
Mega Pinball	Starvision International	**$39.95**	4 arcade pinball screens
Menace	Psygnosis Ltd.	**$29.95**	arcade
Metropolis	Mastertronic	**$39.95**	simulation
Mike the Magic Dragon	Anco	**$24.95**	arcade adventure
Mindwalker	Commodore	**$49.95**	3-D arcade game
Mission Elevator	Reline Software	**$19.95**	arcade: collect clues and diffuse bomb
Moebius: The Orb of Harmony	Origin Systems	**$39.95**	fantasy adventure
Moonmist	Infocom	**$14.95**	text adventure, mail order only
Mousequest	StarSoft Development	**$19.95**	arcade
Murder on the Atlantic	IntraCorp	**$39.95**	solve a mystery
NFL Data Disk	Bethesda Softworks	**$19.95**	coach and trade NFL players; for use with Gridiron
Ninja Mission	Mastertronic International	**$19.99**	martial arts game
Nord & Bert Couldn't. . .	Infocom	**$39.95**	text adventure, mail order only
Obliterator	Psygnosis Ltd.	**$39.95**	arcade obliteration
Off-Shore Warrior	Titus Software	**$39.95**	speed-boat battle race
Ogre	Origin Systems	**$29.95**	battle a mechanized tank
One-On-One	Electronic Arts	**$19.95**	Larry Bird and Doctor J. do battle
Oo-Topos	Polarware Software	**$19.95**	sci-fi graphics adventure
Operation Wolf	Taito	**$39.95**	commando-style arcade attack
Out Run	Sega	**$49.95**	drive a race car on various terrains
Paladin	Omnitrend Software	**$39.95**	animated fantasy combat game
Pawn, The	Rainbird Software	**$24.95**	illustrated adventure
Persecutors	Constellation Software	**$19.95**	nautical conflict arcade
Phantasie	Strategic Simulations	**$39.95**	role-playing adventure
Phantasie III: Wrath of Nicodemus	Strategic Simulations	**$39.95**	role-playing adventure
Phantasm	Scorpion Software	**$34.95**	arcade exploration and shooting
Pinball Wizard	Anco	**$24.95**	pinball simulation
Pioneer Plague	Antic Software	**$39.95**	futuristic space adventure
Planetfall	Infocom	**$14.95**	text adventure, mail order only
Plundered Hearts	Infocom	**$39.95**	text adventure, mail order only
Plutos	Mindscape	**$29.95**	arcade shoot-'em-up
Popman	David Ashley	**$20.00**	fast-paced arcade action
Ports of Call	Aegis	**$49.95**	strategy: shipping simulation
POW	Actionware	**$39.95**	phaser-gun-compatible arcade rescue
Power Play	Bethesda Softworks	**$49.95**	real-time hockey simulation
Power Play Player Disk	Bethesda Softworks	**NA**	team disk for use with Power Play
PowerStyx	DigiTek	**$34.95**	joystick arcade
President is Missing, The	Cosmi	**$39.95**	mystery adventure; comes with audio cassette
Prime Time	First Row Software	**$39.95**	TV-network direction simulation
Pro Football Facts and Predictions	IntraCorp	**$14.95**	NFL statistics; determines likely winners
Pub Games	Arcadia	**$34.95**	arcade-style pool and darts
Puppy Love	Addison-Wesley	**$29.95**	teach a dog tricks to learn programming techniques

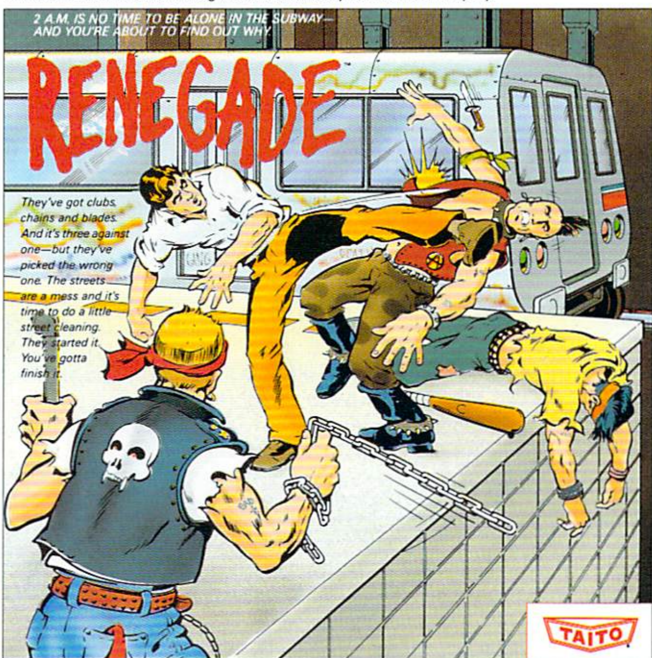
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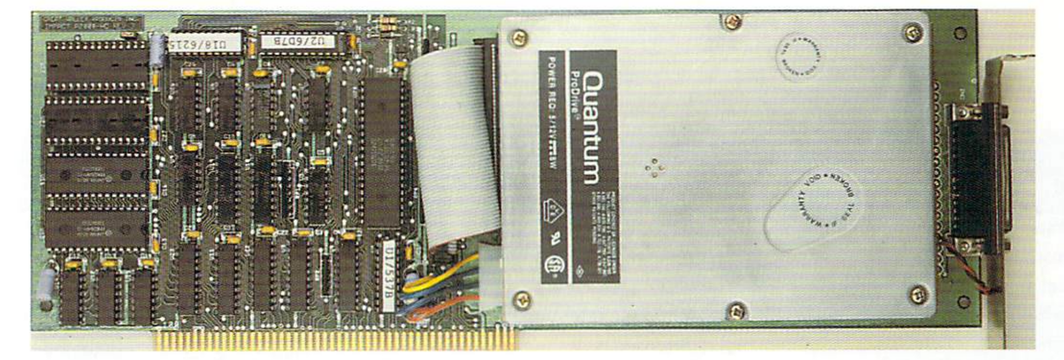


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Q-Ball	Mindscape	$29.95	3-D pool game
QIX	Taito	$39.95	arcade
Questron II	Strategic Simulations	$49.95	fantasy/role-playing
Quintette	Miles Computing Inc.	$39.95	Penta game
Quizam	Interstel	$34.95	trivia game
Rastan	Taito	$39.95	magical arcade adventure
Reach for the Stars	Strategic Studies Group	$45.00	fantasy/strategy; rule the galaxy
Realm of the Warlock	Incognito Software	$34.95	graphic text adventure
Remarkable Talking Super Puzzle	Signs Etc. by D. Knox	$19.95	90 jigsaw-type puzzles; preschool to adult
Renegade	Taito	$39.95	street-style arcade karate
Return to Atlantis	Electronic Arts	$49.95	aquatic graphics strategy/adventure
Roadwar 2000	Strategic Simulations	$39.95	action/strategy
Roadwar Europa	Strategic Simulations	$44.95	graphic-text adventure set in 21st-century Europe
Roadwars	Arcadia	$34.99	arcade; interplanetary mission
Robbeary	Anco	$24.95	arcade
Rock Challenge	ReadySoft	$39.95	rock music trivia
Rocket Ranger	Cinemaware	$49.95	interactive arcade/strategy movie tale
Rockford	Arcadia	$34.95	arcade adventure
Romantic Encounters at the Dome	MicroIllusions	$39.95	adult text adventure
Rubicon Alliance, The	DataSoft	$29.95	galactic war game
Rush 'N Attack	Konami	$39.95	arcade; free POWs
Santa Paravia and Fiumaccio	StarSoft Development	$29.95	strategy
Scary Mutant Space Aliens from Mars	ReadySoft	$39.95	illustrated text adventure
Scenery Disk #11	subLOGIC	$24.95	flight simulator scenery
Scenery Disk #7	subLOGIC	$24.95	southeastern US scenery for use with Jet
Scrolls of Talmouth	Omnitrend Software	$24.95	quest disk for use with Paladin
SDI	Cinemaware	$49.95	arcade
Seastalker	Infocom	$ 9.95	text adventure, mail order only
Seconds Out	StarSoft Development	$29.95	boxing simulation
Serayachi Campaign, The	Omnitrend Software	$24.95	combat scenario disk for Breach game
Seven Cities of Gold	Electronic Arts	$19.95	discover America
Sex Vixens from Space	Free Spirit Software	$39.95	graphic text adventure
Shadowgate	Cinemaware	$49.95	illustrated adventure
Shanghai	Mediagenic	$39.95	strategy board game
Sherlock: Riddle of Crown Jewels	Infocom	$39.95	text adventure with sound and on-line hints
Shiloh: Grant's Trial in the West	Strategic Simulations	$44.95	civil war battle simulation
Shrine of the Demon Soul	MicroIllusions	$39.95	arcade-style dungeon game
Silent Service	MicroProse	$39.95	submarine simulation
Sinbad and the Throne of the Falcon	Cinemaware	$49.95	arcade/strategy game
Sky Chase	Maxis Software Inc.	$39.95	2-player jet-fighter simulator
Skyblaster	DigiTek	$34.95	3-D air-to-air and air-to-ground combat simulation
Skyfox	Electronic Arts	$19.95	arcade
Skyfox II: The Cygnus Conflict	Electronic Arts	$39.95	arcade simulation
Slam Dunk Basketball	Mastertronic International	$19.99	basketball simulation for 1 or 2 players
Slaygon	Microdeal	$39.95	arcade/strategy tank simulation
Snake Pit	Incognito Software	$34.95	strategy action maze game
Snowberry-On Thin Ice	Starvision International	$29.95	arcade
Software Golden Oldies	Software Toolworks	$34.95	Eliza, Life, Adventure, Pong
Solarsim	Interstel	$34.95	astronomy simulation
Solitaire Royale	Spectrum Holobyte	$29.95	eight adult solitaire games; three children's games
Sorcer Lord	DataSoft	$34.95	fantasy war game
Sorcerer	Infocom	$14.95	text adventure, mail order only
Space Battle	Constellation Software	$19.95	pilot a hyper-driven space ship
Space Harrier	Sega	$49.95	play astral exterminator
Space Quest	Sierra On-Line	$49.95	interactive adventure
Space Ranger	Mastertronic International	$19.99	arcade action and animation on 3 planets
SpaceCutter	Rainbird Software	$29.95	logic/strategy shoot-'em-up
Spaceport	Reline Software	$19.95	arcade seek-and-destroy
Spellbreaker	Infocom	$14.95	text adventure, mail order only
Spinworld	DigiTek	$29.95	arcade



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IMPACT HC/80Q	YES	YES	YES	QUANTUM PRODRIVE 80S	80 MB	19/11ms*	64KB	50000 Hrs	2.0 MBYTE/SEC
IMPACT HC/100	YES	YES	YES	CONNER CP 3100	100 MB	25ms	NONE	25000 Hrs	1.25 MBYTE/SEC
MOST COMPETITIVE PRODUCTS	NO	NO	SOME	MOSTLY ST157N	46 MB	40ms	NONE	30000 Hrs	1.04 MBYTE/SEC

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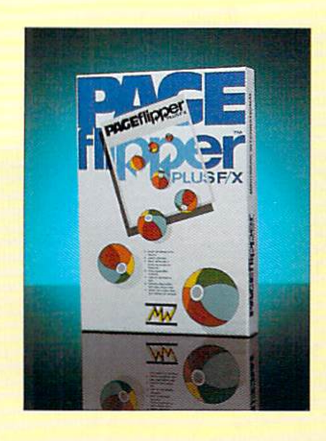
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Star Wars	Broderbund Software	**$39.95**	arcade adventure based on the film
Starcross	Infocom	**$ 9.95**	text adventure, mail order only
Starfleet I	Interstel	**$59.95**	space strategy
Starglider	Rainbird Software	**$24.95**	arcade
Starglider II	Rainbird Software	**$44.95**	interplanetary battle strategy
Stationfall	Infocom	**$39.95**	text adventure, mail order only
Stellar Conflict	PAR Software	**$39.95**	space-conquest strategy game
Street Cat	Epyx	**$24.95**	urban feline athletics
Street Sports Basketball	Epyx	**$39.95**	basketball simulation
Strip Poker	Artworx	**$39.95**	poker game
Strip Poker Data Disk #4	Artworx	**$19.95**	Dawn and Crystal
Strip Poker Data Disk #5	Artworx	**$19.95**	Cynthia and Janice
Strip Poker II	Artworx	**$39.95**	with digitized graphics
Sub Battle Simulator	Epyx	**$39.95**	command a sub
Summer Events	Anco	**$24.95**	Olympic-events simulation
Super Huey	Cosmi	**$14.95**	helicopter flight simulation
Super Puzzle Data Disk	Signs Etc. by D. Knox	**$15.00**	2 data disks for Remarkable Talking Super Puzzle
Superstar Ice Hockey	Mindscape	**$49.95**	hockey simulation: play, coach, or manage
Superstar Indoor Sports	Mindscape	**$49.95**	darts, air hockey, bowling, Ping Pong
Surgeon, The	ISM Inc.	**$49.95**	surgery simulation
Suspect	Infocom	**$14.95**	text adventure, mail order only
Suspended	Infocom	**$ 9.95**	text adventure, mail order only
Sword of Sodan	Discovery Software	**$49.95**	arcade sword fighting on 3 disks
Tafar	Mastertronic	**$19.99**	arcade
Tanglewood	Microdeal	**$39.95**	arcade
Team Construction Disk	Accolade	**$14.95**	assemble your own teams for 4th and Inches
TeleEpic	Software Terminal	**$39.95**	medieval combat via modem
TeleGames	Software Terminal	**$34.95**	chess, checkers, backgammon by modem
TeleWar	Software Terminal	**$39.95**	tank, naval, and space battles by modem
Terrorpods	Psygnosis Ltd.	**$39.95**	strategy/arcade
Test Drive	Accolade	**$44.95**	sports-car driving simulation
Tetra Quest	Microdeal	**$39.95**	arcade
Tetris	Spectrum Holobyte	**$34.95**	arcade-style puzzle
Thai Boxing	Artworx	**$14.95**	kick-boxing simulation
The Enigma Device	King Publishing	**$39.95**	cryptogram game
The Games: Winter Edition	Epyx	**$39.95**	winter sports; licensed from the US Olympics
Thexder	Sierra On-Line	**$34.95**	arcade battle
Three Stooges, The	Cinemaware	**$49.95**	arcade interactive comedy movie
Thud-Ridge	Three-Sixty	**$39.95**	air-combat simulation with 10 missions from Vietnam
Thunder Boy	DigiTek	**$34.95**	arcade adventure
Time Bandit	Microdeal	**$39.95**	three graphic/text adventures
Time Lord	Incognito Software	**$39.95**	multi-level strategy game
Torch 2081	Digital Concepts	**$24.95**	rendition of the arcade game QIX
Tournament Disk #1	Access Software	**$19.95**	courses for Leader Board
Tracers	MicroIllusions	**$34.95**	arcade chase; dueling energy lines
Transylvania	Polarware Software	**$19.95**	illustrated adventure
Trials of Honor	Epyx	**$39.95**	storybook adventure
Trinity	Infocom	**$14.95**	text adventure, mail order only
Turbo	MicroIllusions	**$24.95**	auto racing
Twilight Zone, The	First Row Software	**$39.95**	role-play a bizarre storyline
Twilight's Ransom	Paragon Software	**$34.95**	graphic text adventure
Twin Ranger	Starvision International	**$39.95**	arcade shoot-'em-up
Ultima III	Origin Systems	**$39.95**	role-playing adventure
Ultima IV	Origin Systems	**$59.95**	fantasy role-playing
Uninvited	Mindscape	**$49.95**	illustrated adventure
Universal Military Simulator	Rainbird Software	**$49.95**	re-enact five historical battles
Vampire's Empire	DigiTek	**$44.95**	arcade adventure



Video Vegas	Baudville	**$34.95**	gambling simulation
Viper Patrol	Keypunch Software	**$14.99**	space arcade
Virus	Rainbird Software	**$29.95**	arcade/adventure combat
War in Middle Earth	Melbourne House	**$49.99**	control Lord of the Rings characters
Warlock	Three-Sixty	**$34.95**	arcade action
Way of the Little Dragon	Reline Software	**$19.95**	karate adventure
Western European Tour	subLOGIC	**$24.95**	scenery disk for use with Jet
Western Games	DigiTek	**$34.95**	beer shooting, arm wrestling, and other events
Who Framed Roger Rabbit	Buena Vista Software	**$44.95**	animated strategy adventure
Windough	CompuPu??les	**$16.97**	crossword-type puzzle/game
Winter Challenge	Thunder Mountain	**$14.95**	Olympic-sports simulation
Winter Games	Epyx	**$39.95**	fun in the snow with 8 Olympic-style events
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Witchcraft	Snake Design Software	**$44.95**	role-playing adventure
Witness,The	Infocom	**$ 9.95**	text adventure, mail order only
Wizard Wars	Paragon Software	**$39.95**	graphic fantasy adventure
WordPlex 2.1	PAR Software	**$39.95**	Wheel-of-Fortune-type game for up to six
WordPlex Data Disks	PAR Software	**$24.95**	extra phrases
World Class Leader Board	Access Software	**$44.95**	3-D golf simulation lets you practice strategies
World Games	Epyx	**$39.95**	cliff diving, log rolling, etc
World Tour Golf	Electronic Arts	**$39.95**	golf simulation: over 20 famous courses
Zoom!	Discovery Software	**$29.95**	3-D maze chase with 50 levels and stereo sound
Zork I	Infocom	**$14.95**	text adventure, mail order only
Zork II	Infocom	**$14.95**	text adventure, mail order only
Zork III	Infocom	**$14.95**	text adventure, mail order only
Zork Trilogy	Infocom	**$49.96**	Zork I, II and III
Zynaps	Scorpion Software	**$34.95**	shoot-and-destroy

GRAPHICS/VIDEO

PRODUCT	COMPANY	PRICE	DESCRIPTION
3-D Graphics	True BASIC Inc.	**$ 69.95**	3-D contour plots
3-Demon	Mimetics Corp.	**$ 99.95**	3-D object editor
3-Tuple	Mitchell Ware Systems	**$ 300.00**	3-D animation and rendering
Aegis Animator	Aegis	**$ 99.95**	polymorphic animation, includes Images
Aegis Draw 2000	Aegis	**$ 79.95**	entry-level design drawing
Aegis Draw Plus	Aegis	**$ 279.95**	2-D CAD program
Aegis Images	Aegis	**$ 39.95**	paint program
Aegis Impact	Aegis	**$ 89.95**	business presentation graphics
AlohaFonts Volume I	AlohaFonts	**$ 19.95**	fonts and dingbats for desktop publishing
Amiga Coloring Book, The: Borders	The Dragon Group	**$ 34.95**	over 50 borders
Amiga Coloring Book, The: Sampler	The Dragon Group	**$ 34.95**	assorted IFF clip art
Amiga Coloring Book, The: World	The Dragon Group	**$ 34.95**	maps from around the globe
AmigaMETAFONT	Radical Eye Software	**$ 75.00**	font design system
Analytic Art	Crystal Rose Software	**$ 59.95**	generates pictures using fractals
Animate 3D	Byte by Byte	**$ 149.95**	3-D ray-traced animation module for Sculpt 3D
Animation:Apprentice 3.2	Hash Enterprises	**$ 295.00**	organic animation program / animation paint overlay
Animation:Editor	Hash Enterprises	**$ 59.95**	animation cut and paste
Animation:Effects	Hash Enterprises	**$ 49.95**	ADO-like video effects
Animation:Flipper	Hash Enterprises	**$ 15.95**	page-flips IFF pictures in ANIM standard
Animation:Libraries	Hash Enterprises	**$ 24.95**	objects for use with Animation:Apprentice
Animation:Multiplane	Hash Enterprises	**$ 89.95**	digital compositor
Animation:Rotoscope	Hash Enterprises	**$ 79.95**	single-frame editing and touchup
Animation:Stand	Hash Enterprises	**$ 49.95**	software version of an animation camera stand
Animotion	Finally Technologies	**$ 99.95**	cel animation and more

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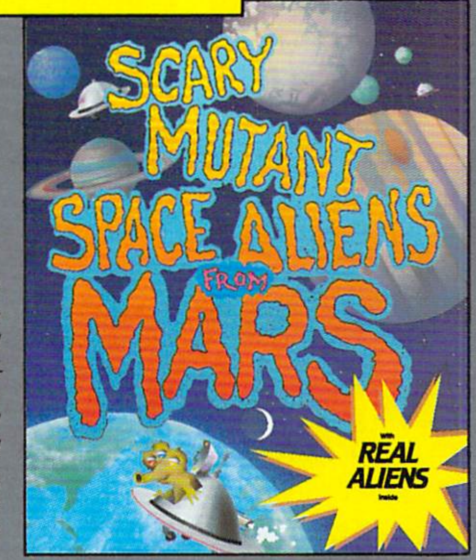
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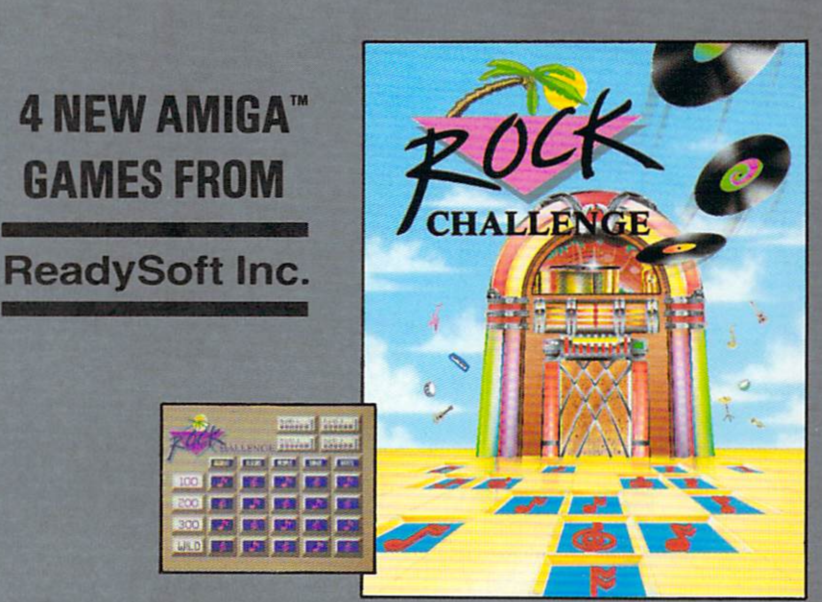
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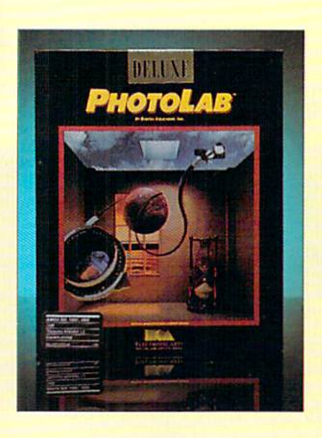
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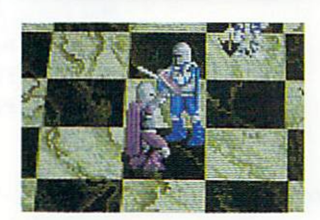
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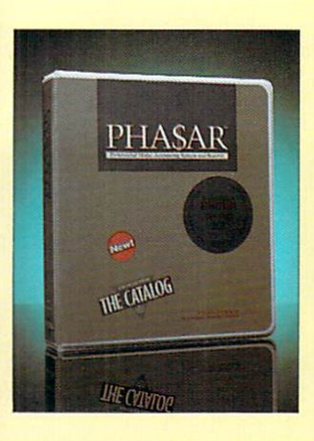
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Architectural Library	Madrigal Residential Designs	$ 69.95	floor plan, parts, and room modules: Aegis CAD format
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Architectural Library	Madrigal Residential Designs	$ 29.95	floor plan, parts, and room modules in IFF paint format
Architectural Library	Madrigal Residential Designs	$ 29.95	interior design furniture parts in IFF paint format
Art Companion Volume I	MicroSearch	$ 29.95	200 medium-res IFF images for use in desktop publishing
Art Companion Volumes II, III, IV	MicroSearch	$ 29.95	200 hi-res IFF graphics per package
Art Gallery I and II	Unison World	$ 29.95	clip art
Art Gallery: American History	Unison World	$ 39.95	390 images; for PrintMaster
Art Gallery: Fantasy	Unison World	$ 29.95	140 graphics; for PrintMaster
Art Pak I	Aegis	$ 34.95	IFF clip art
Art Parts, Volume I	Electronic Arts	$ 29.95	over 175 color clip-art images; for EA products
Arts Parts #2	Electronic Arts	$ 29.95	DeluxePaint data disk
Award Maker Plus	Baudville	$ 49.95	creates awards and certificates
B-Paint	Finally Technologies	$ 39.95	drawing program with source code
Big Picture, The	Lightning Publishing	$ 29.95	prints murals
BoardWalk Font Set	C Ltd.	$ 49.95	BoardWalk font in various sizes and styles
Borders Font Set	C Ltd.	$ 49.95	font set with borders and outlines
Broadcast Titler	InnoVision Technology	$ 299.95	Amiga and ColorFonts character generator
Bumper Sticker Maker	IntraCorp	$ 59.95	design and print bumper stickers
Business Card Maker	IntraCorp	$ 59.95	design and print custom cards
Business Font Set	C Ltd.	$ 49.95	two fonts in various styles
Butcher	Eagle Tree Software	$ 37.00	HAM to hi- to lo-res conversions
Button and Badge Maker	IntraCorp	$ 59.95	design and print buttons and badges
C-Light	Peterson Enterprises	$ 49.00	ray-tracing program with animation
CAD Parts	East/West Software	$ 24.95	over 150 symbols used in electronics
Caligari	Octree Software	$ 1995.00	3-D animation program for professionals
CalligraFonts Series: Andre's	InterActive Softworks	$ 46.25	studio fonts Volume I
CalligraFonts Series: Andre's	InterActive Softworks	$ 46.25	newsletter fonts Volume I
CalligraFonts Series: Asha's	InterActive Softworks	$ 89.95	stained glass, KidsBlox, bronze and script
CalligraFonts Series: Lion's	InterActive Softworks	$ 89.95	4-disk pack
CalligraFonts/Lion's Assorted	InterActive Softworks	$ 59.95	150 fonts
Calligrapher, The	InterActive Softworks	$ 129.95	Colorfont design package
Celtic Open Font Set	C Ltd.	$ 49.95	Celtic Open font
Choromap	Bassett Geographic	$ 48.00	creates maps that show data in various colors
Chroma Paint	Designing Minds Inc.	$ 49.95	paint program; supports Extra_HalfBrite mode
Classic Script Font Set	C Ltd.	$ 49.95	Classic Script font
Clip Art Disks 1-8	Magnetic Images	$ 19.95	over 100 hi-res images per disk
ComicArt Series	Gold Disk	$ 34.95	clip art for Comic Setter; 3 packages
Commercial Font Set	C Ltd.	$ 99.95	TRP and HVP fonts in upright, italic, and cilati
Deluxe Maps Vol. I	Computer Arts	$ 25.00	US regional and state maps, IFF
Deluxe Productions	Electronic Arts	$ 199.95	3-D animation
DeluxePaint Art & Utility Disk	Electronic Arts	$ 29.95	includes slideshow
DeluxePaint II	Electronic Arts	$ 129.95	paint program
DeluxePrint II	Electronic Arts	$ 79.95	make cards, banners, etc
DeluxeProductions	Electronic Arts	$ 199.95	hi-res video creation and presentation program
DeluxeVideo 1.2	Electronic Arts	$ 129.95	video animation, titling, and music
Design 3D	Gold Disk	$ 99.95	modeling package
Desktop Artist	SunRize Industries	$ 29.95	black-and-white clip art
Diamond	Impulse	$ 99.95	HAM paint program and image processor
Digi-Paint	NewTek	$ 59.95	HAM paint package
Digi-Paint II	NewTek	$ 79.95	HAM paint package text, overscan, texture mapping
Director, The	Right Answers Group	$ 69.95	animation sequencing
Doug's Math Aquarium	Seven Seas Software	$ 89.95	graphics representation of math formulas
EarthBound Disk A-1	EarthBound Software	$ 15.00	Font Collection
EarthBound Disk A-2	EarthBound Software	$ 15.00	Font Collection
EarthBound Disk A-3	EarthBound Software	$ 15.00	Font Collection
Elan Performer	Elan Design	$ 49.00	interactive display of imagery from paint programs
Express Clip Art	PAR Software	$ 29.95	IFF, hi-res images







Express Paint 2.2	PAR Software	$ 99.95	paint program that imports text
Eye Play 2	Silver Software	$ 19.95	build computer art from 36 graphic routines
Fancy 3D Fonts	Access Technologies	$ 79.95	fonts package
FinePrint	Designlab	$ 49.95	produces hi-res 16-gray-scale dumps
Fonts & Borders	Unison World	$ 34.95	20 type fonts, many sizes; 20 borders
Fontset 1	Gold Disk	$ 34.95	8 type faces
Forms in Flight 2	Micro Magic	$ 119.00	3-D drawing and animation with Phong shading
Forms in Flight Conversion Module	Syndesis	$ 19.95	share FIF files with other formats
Future Design Disk	Antic Software	$ 34.95	build spacecraft, robots, etc.
Grabbit	Discovery Software	$ 29.95	screen print and save
Graphicraft	Commodore	$ 49.95	paint program
Graphics Library	Associated Computer Ser.	$ 195.00	over 300 maps, backgrounds, and symbols
Graphics Studio, The	Accolade	$ 49.95	paint program
Headline Font Set	C Ltd.	$ 49.95	headline-sized HVP, Celtic, Open, and others
HomeBuilders_CAD	EaseWare	$ 199.00	3-D design and estimating system for construction
HomeBuilders_Choice	EaseWare	$ 81.00	add-on for HomeBuilders_CAD
HomeBuilders_Print	EaseWare	$ 81.00	HomeBuilders_CAD add-on
HUGEprint	Hugh's Software Ranch	$ 48.00	mural printer
Human Design Disk	Antic Software	$ 34.95	male and female prototypes
Interchange	Syndesis	$ 49.95	share objects between Sculpt 3D and VideoScape 3D
InterFont	Syndesis	$ 119.95	create fonts for 3-D animation and modeling
InterFont Add-on Module	Syndesis	$ 79.95	font-creation add-on for Interchange owners
IntroCAD 2.0	Progressive Peripherals	$ 79.95	elemental design program
Invision	Elan Design	$ 129.00	video effects; works with Live digitizer!
Jet Set Font Sets	C Ltd.	$ 49.95	fonts for Jet Set utility, price up to $99.95
JMH Easy Titler	JMH Software	$ 49.95	auto-booting character generator
Kara Fonts Headlines	Kara Computer Graphics	$ 79.95	10 hi-res dimensional fonts in 2 sizes each
LaserUp! Draw	S. Anthony Studios	$ 99.95	screen drawing package duplicates PostScript
LaserUp! Fonts 1	S. Anthony Studios	$ 39.95	fonts for LaserWriter
Lights! Camera! Action!	Aegis	$ 79.95	slide-show and special-effects program
Lion's Fonts	Lion's Amiga Art Studio	$ 49.95	150 font sizes and styles
LogicWorks	Capilano Computer Systems	$ 299.95	schematic capture and digital simulation EE CAD
Mandala, The	Very Vivid	$ 399.00	Interactive real-time animation/video/music
Microbot Design Disk	Antic Software	$ 34.95	create and configure humanoids and aliens
Micropolis	Maxis Software Inc.	$ 49.95	city planning simulation
MovieSetter	Gold Disk	$ 99.95	WYSIWYG animation
Object Disks	Syndesis	$ 19.95	a library of Sculpt 3D and VideoScape 3D objects
Olde English Font Set	C Ltd.	$ 49.95	Olde English fonts
Pageflipper	Mindware International	$ 29.95	full-screen IFF-image animation
Pageflipper Plus F/X	Mindware International	$ 159.95	high-end cel animation and special effects tool
Pagerender 3-D	Mindware International	$ 149.95	Intuition interface to ray-tracing and other tools
Pagesetter LaserScript	Gold Disk	$ 44.95	prints Pagesetter documents on PostScript printers
Pagesync	Mindware International	$ 99.95	MIDI animation synchronization module
PCLO	SoftCircuits	$ 199.95	EE CAD
PCLO Plus	SoftCircuits	$ 499.95	EE CAD, high density, full ARexx host
Photon Paint	MicroIllusions	$ 99.95	HAM paint program
Photon Paint Expansion Disks	MicroIllusions	$ 29.95	a variety of wood and marble surfaces
Photon Video: Cel Animator	MicroIllusions	$ 149.95	professional cel animation
Photon Video: Transport Controller	MicroIllusions	$ 299.95	drives single-frame video controller
PhotoSynthesis	Escape Sequence	$ 149.95	image processing software
PIXmate	Progressive Peripherals	$ 49.95	image enhancement
Plot-to-Print Converter	Hi-Tech Graphics	$ 20.00	quality output on six printers, prices to $35
Print Master Plus	Unison World	$ 39.95	print greeting cards and newsletters
Pro Video CG1	JDK Images	$ 199.95	video character generator
Pro Video CG1 Font Library	JDK Images	$ 99.95	2 sets, 4 styles, 3 sizes; PAL versions avail.
Pro Video CGI Font Library Set 1	JDK Images	$ 99.95	compete, showtime, bulletin, and future fonts
Pro Video CGI Font Library Set 2	JDK Images	$ 99.95	pacific, encore, europa, and computer fonts
Pro Video Fonts	JDK Images	$ 49.95	11 fonts in 3 sizes for Pro Video CG1
Pro Video Plus	JDK Images	$ 299.95	expanded character generater
Pro Video Plus Fonts Library	JDK Images	$ 129.95	3 sets for Pro Video Plus only; PAL avail.



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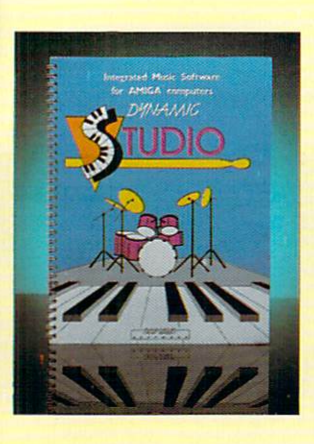
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Pro-Board	Prolific Inc.	**$ 475.00**	PCB CAD program
Pro-Net	Prolific Inc.	**$ 475.00**	schematic capture CAD system
Professional Draw	Gold Disk	**$ 199.95**	color illustration and graphic design program
Professional Font Library	Classic Concepts Futureware	**$ 59.95**	6 disks plus color font disk
ProFonts I	New Horizons Software	**NA**	fonts package
ProFonts II	New Horizons Software	**NA**	fonts package
Pyre Script Font Set	C Ltd.	**$ 49.95**	Pyre Script font
Quick-Art Borders and Vignettes	Classic Concepts Futureware	**$ 24.95**	clip art
Raytrace Program	Incognito Software	**NA**	for use with high-tech 3-D glasses
Scheme	SoftCircuits	**$ 199.95**	schematic capture package
Sculpt 3D	Byte by Byte	**$ 99.95**	3-D object editing and ray-traced rendering
Sculpt-Animate 4D	Byte by Byte	**$ 499.95**	professional 3D animation, scanline or ray-traced
Seasons & Holidays	Electronic Arts	**$ 29.95**	DeluxePaint data
Silver Companion Modules	Impulse	**$ 30.00**	build Cities and Terrain with Turbo Silver
Simple Script Font Set	C Ltd.	**$ 49.95**	Simple Script in various sizes
Sky Paint	Incognito Software	**$ 49.99**	draw pictures in real time
Snip	Digital Dynamics	**$ 495.50**	digital signal processing program
Station Manager/Teleprompter	Associated Computer Ser.	**$ 295.00**	commercial-quality teleprompter
Storybook Capitals	Classic Concepts Futureware	**$ 24.95**	fonts; 2-disk set
SuperFont Sampler 2.0	Classic Concepts Futureware	**$ 24.95**	fonts; 2-disk set
Symbols Font Set	C Ltd.	**$ 49.95**	set of hi-res, commonly-used symbols
Talking Animator, The	JMH Software	**$ 49.95**	page-flipping animation with talking text
Tape Library Management	Associated Computer Ser.	**$ 295.00**	pre-programmed, relational tape-library management
Tate Fonts I	Byte by Byte	**$ 69.95**	library with tube, slot, and prism fonts
Tate Fonts II	Byte by Byte	**$ 69.95**	library with tronic, chisel, and video bold fonts
Time and Scheduling	Associated Computer Ser.	**$ 295.00**	on-air program scheduling
Turbo Print	Intelligent Memory	**$ 49.95**	printing utilities
Turbo Silver	Impulse	**$ 199.00**	ray-trace animation
Turbo Silver Module	Syndesis	**$ 19.95**	share objects with other formats using Interchange
TV*SHOW	Zuma Group	**$ 99.95**	video special-effects generator
TV*TEXT	Zuma Group	**$ 99.95**	video character generator
UltraCAD	Progressive Peripherals	**$ 299.95**	full-scale CAD
Unity Roman Font Set	C Ltd.	**$ 49.95**	Unity Roman sizes of upright, italic, and cilati
US Space Station/Orbiter	Byte by Byte	**$ 69.95**	object library with space station/orbiter designs
Video and Headline Fonts 2.0	Classic Concepts Futureware	**$ 24.95**	fonts; 2-disk set
Video Backdrops	APT Inc.	**$ 19.95**	background art for videos
Video Effects 3D	InnoVision Technology	**$ 199.00**	3-D effects and animation
Video Fonts	JDK Images	**$ 49.95**	hi-res bit-mapped fonts
Video Visions Volume I	Charles Voner Designs	**$ 24.95**	art logos and backdrops
Video Visions Volume II	Charles Voner Designs	**$ 24.95**	art for 3-D and pageflipping programs
Video Visions Volume III	Charles Voner Designs	**$ 24.95**	images and parts for use with 2-D pageflipping program
Video Visions Volume IV	Charles Voner Designs	**$ 24.95**	images and parts for use wedding-occasions subjects
Video Visions Volume V	Charles Voner Designs	**$ 24.95**	images and parts for business-broadcast subjects
Video Visions Volume VI	Charles Voner Designs	**$ 24.95**	history-geography disk set
Video Visions Volume VII	Charles Voner Designs	**$ 24.95**	products-symbols
Video Wizard, The	IntraCorp	**$ 29.95**	finds blank spaces on video tapes, prints labels, more
Videoscape 3D 2.0	Aegis	**$ 199.95**	3-D video animation
VideoTitler	Aegis	**$ 149.95**	titling and special-effects generator
Weather Graphics Map Generator	Associated Computer Ser.	**$ 145.00**	produces hi-res maps
Weather Graphics Weather-Link	Associated Computer Ser.	**$ 295.00**	download data from weather services
Weave-It	Joyce I. Peck	**$ 69.95**	create weaving draw-down patterns on IFF files
Weave-It Plus	Joyce I. Peck	**$ 84.95**	Weave-It with added utilities
WindowPrint II	Computer Toolsmith	**$ 34.95**	screen capture and dump
X-CAD	Taurus Software	**$ 599.95**	professional 2-D CAD system
Zoetrope	Antic Software Publishing	**$ 139.95**	2- and 3-D image creation and animation system
Zuma Fonts Vol 1–3	Zuma Group	**$ 34.95**	a different set of fonts in each volume



HOME/PERSONAL FINANCE

PRODUCT	COMPANY	PRICE	DESCRIPTION
2 + 2 Home Management System	ArborSoft Inc.	$ 99.00	home financial management
Amy-X10	Digital Dynamics	$ 49.50	control lights, appliances
BowlMaster	Software Ingenuity	$ 34.95	personalized bowling score keeper
Ea$y Loan$ Personal	PAR Software	$ 79.95	personal loan amortizations
Health Med	Lee Software	$ 99.00	gives comprehensive medical information
Home Inventory Manager	SunSmile Software	$ 29.95	personal inventory system
Investor's Advantage 2.0	Software Adv. Consulting	$ 99.95	stock analysis
MicroLawyer	Progressive Peripherals	$ 59.95	standard legal templates and forms
Money Mentor	Sedona Software	$ 95.95	personal accounting
Nutri-Fax	Meggido Enterprises	$ 59.95	calculates nutritional value of recipes
PHASAR 3.0	Antic Software	$ 89.95	home finance management program
Recipe Disk	Meggido Enterprises	$ 14.95	recipes
Recipe-Fax	Meggido Enterprises	$ 39.95	converts recipes to serving needs
Securities Analyst	Free Spirit Software	$ 79.95	stock charting program
Take-Stock	East/West Software	$ 49.95	stock monitoring and analysis program
Tax Strategist, The	Digital Dynamics	$ 69.00	Federal income-tax return
Tax Strategist, The	Digital Dynamics	$ 99.00	Federal and California state income-tax returns
Total Control Diet	Lee Software	$ 49.95	a high-tech approach to weight loss
Your Personal Cookbook	MicroSearch	$ 49.95	digitized images, recipes

MUSIC/SOUND

PRODUCT	COMPANY	PRICE	DESCRIPTION
4-Op Deluxe	Dr. T's	$ 149.00	editor/librarian for TX-81Z, FB01, DX100 and DX27
Adept Real-time Sound Processor	Adept Development	NA	real-time digital-sound processor
ADrum	Bullfrog Productions	$ 79.95	software drum machine with MIDI
Animation	WaveTable Technologies	$ 19.95	non-looping sounds for graphics production
AudioMaster	Aegis	$ 59.95	digitized sample editor
Bach Songbook	Dr. T's	$ 29.00	Bach fugues and inventions
Big Dollar Synth	WaveTable Technologies	$ 19.95	samples from studio-quality synthesizers
C-Zar	Diemer Development	$ 195.00	multitasking Casio CZ-101/1000 editor/librarian
Composer's Disks Volumes 1-6	WaveTable Technologies	$ 19.95	over 30 sound samples per volume
Copyist I, The	Dr. T's	$ 99.00	prints 5 pages of music on dot-matrix printer
Copyist II, The	Dr. T's	$ 249.00	prints 50 pages; dot-matrix, laser
Copyist III, The	Dr. T's	$ 399.99	with Adobe sonata fonts; prints 100 pages
CZ Master	Sound Quest	$ 125.00	editor/librarian supporting the Casio CZ series
CZ Voices	Dr. T's	$ 49.00	sounds for Casio CZ series
CZ-Pat	CRB Productions	$ 35.00	editor/librarian for the Casio 101/1000
D-50 Parameter Editor	Go Software	$ 89.95	editor for use with the Roland D-50
D10 Master	Sound Quest	$ 150.00	editor/librarian for the Roland D-10
D110 Master	Sound Quest	$ 150.00	editor/librarian for the Roland D-110
D50 Master Editor/Librarian The	Sound Quest	$ 150.00	edit D50 data
Deluxe Music Construction Set	Electronic Arts	$ 99.95	music editor and score printer
Digital Synthesizer	E.C.T. Sampleware	$ 25.00	digital synthesizer sounds
DNA Music	Silver Software	$ 19.95	music based upon DNA molecule
Dr. Drums	Dr. T's	$ 29.00	MIDI drum patterns in KCS format
Dr. Keys	Dr. T's	$ 29.00	keyboard patterns for KCS
Drum Studio	DigiTek	$ 29.95	non-Intuition percussive composition program
DX Heaven	Dr. T's	$ 149.00	editor/librarian for the Yamaha DX7

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DX Master Editor, The	Sound Quest	$ 150.00	edits DX-7, DX-9 and TX data files
DX Voices	Dr. T's	$ 49.00	sounds for Yamaha DX series
DXII Master	Sound Quest	$ 175.00	editor/librarian for Yamaha DX7II synthesizer
Dynamic Drums	New Wave Software	$ 79.95	drum machine
Dynamic Studio	New Wave Software	$ 199.95	sequencer, drum machine, and event editor
Dynamics	Robert Shannon	$ 29.95	Deluxe Music tutorial and tools
Editor/Librarian	Dr. T's	$ 149.00	editor/librarian supports Roland D-110
Editor/Librarian	Dr. T's	$ 149.00	for Ensoniq ESQ-1
Editor/Librarian	Dr. T's	$ 149.00	for the Kawai K-1 series
Editor/Librarian	Dr. T's	$ 149.00	for the Roland MT-52
Editor/Librarian	MIDITalk	$ 79.00	for Yamaha TX81Z
Editor/Librarian	Dr. T's	$ 149.00	for the Roland D-50
Editor/Librarian	Dr. T's	$ 149.00	for the Lexicon PCM-70 series
Editor/Librarian	Dr. T's	$ 175.00	for the Kawai K-3 series
Editor/Librarian	Dr. T's	$ 149.00	for the Oberheim Matrix 6/1000
ESQ Voices	Dr. T's	$ 49.00	sounds for the Ensoniq ESQ-1 series
Fractal Music	Silver Software	$ 19.95	music and graphics based upon fractal math
Grab Bag	E.C.T. Sampleware	$ 25.00	miscellaneous sound samples
HMSL	Frog Peak Music	$ 150.00	Hierarchical Music Specification Language
Hot & Cool Jazz	Electronic Arts	$ 29.95	music data disk
Hot Licks	Infinity Software	$ 49.95	entry-level music composition
Instant Music	Electronic Arts	$ 49.95	play music with mouse
It's Only Rock 'N Roll	Electronic Arts	$ 29.95	Instant Music songs
K1 Master	Sound Quest	$ 150.00	editor/librarian for the Kawai K1
K3 Voices	Dr. T's	$ 49.00	sounds for the Kawai K3 series
KCS 1.6A	Dr. T's	$ 249.00	Keyboard Controlled Sequencer
KCS Level II	Dr. T's	$ 325.00	program-variations generator and master editor
Korg DS-8 Voices	Dr. T's	$ 49.00	sounds for the Korg DS-8 series
M for the Amiga	Intelligent Music	$ 200.00	real-time interactive composition and performance
M1 Master	Sound Quest	$ 150.00	editor/librarian for the Korg M1
Mellotron	WaveTable Technologies	$ 19.95	original Mellotron instrument sample with 3 voices
MIDI Recording Studio	Dr. T's	$ 69.00	scaled-down KCS offers 8 tracks instead of 48
MIDISynergy	Geodesic Publications	$ 37.00	source code toolkit for MIDI programmer
MIDITRAX Sequnce Library	Future Music	$ 59.95	pre-arranged sequences in volumes
MidiVU	Diemer Development	$ 29.00	one-track sequencer and MIDI monitor
Modern Percussives	WaveTable Technologies	$ 19.95	over 60 percussive instruments sampled
MT-32 Master	Sound Quest	$ 150.00	editor/librarian supporting the Roland MT-32
MT-32 Voices	Dr. T's	$ 49.00	sounds for the MT-32 editor
Music Mouse	Opcode Systems	$ 79.95	music composition
Music Studio, The	Mediagenic	$ 49.95	music editor
Music Visions	Digital Wizards	$ 29.95	produces light shows from sound digitizers
Music-X	MicroIllusions	$ 299.95	MIDI sequencer, supports SMPTE time code
Orchestral Disk	E.C.T. Sampleware	$ 25.00	orchestral sound samples
Pattern Splatter	Mimetics Corp.	$ 49.95	interactive arpegiation and composition
Protein Music	Silver Software	$ 19.95	music based upon 20 amino acids
QRS Music Rolls	Micro W	$ 19.95	demo disk of sample songs
Quest Sequencer Stage 1: Texture	Sound Quest	$ 150.00	Roland MPU-401, Music Soft interface not required
Real Brass	WaveTable Technologies	$ 19.95	brass instruments digitally recorded
Rock Disk	E.C.T. Sampleware	$ 25.00	rock music samples
Sonic Spectrum Library	DataSound	$ 15.99	over 700 various professionally-sampled sounds
Sonix	Aegis	$ 79.95	synthesizer and note editor
Sound Effects Library	Karl R. Denton Assoc.	$ 79.95	six disks of digitized sounds
Sound Lab Amiga	Blank Software	$ 299.00	create and edit sound samples
Sound Oasis	New Wave Software	$ 99.95	access the Mirage Digital Sampling Keyboard
SoundScape Pro MIDI Studio 1.4	Mimetics Corp.	$ 179.95	MIDI sequencer, music operating environment
Soundshop 2.0	West Chester Software	NA	sound sample and SMUS music editor
SpeakerSim	dissidents	$ 112.00	CAD package for designing loudspeaker systems
SQ-80/ESQ Master	Sound Quest	$ 150.00	editor/librarian for the Ensoniq SQ-80/ESQ-1/ESQ-M
Studio Magic	SunRize Industries	$ 99.95	edit digitized sounds
Symphony Library	Speech Systems	$ 39.95	eight disks, $ 39.95 ea., over 100 SMUS songs



SPOTLIGHT ON

GRAPHICS

Express Paint 3.0

Developed By Professional Automation Resources, Inc.

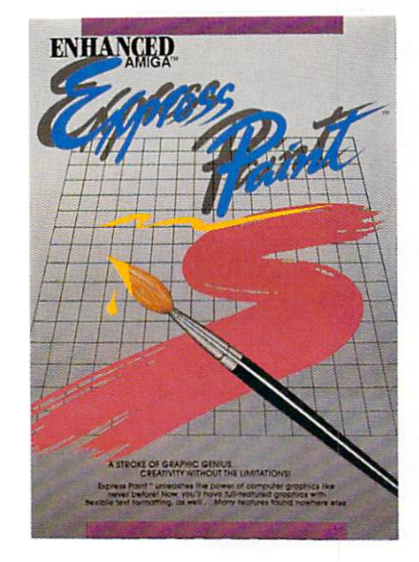
"New Contender For Heavyweight Title Of The Paint Programs."

That's what the press wrote about Express Paint's initial release. When version 2.0 shipped, it became the only paint program with PostScript and poster-size printing. Now version 3.0, with a whole new set of capabilities, deserves still another look.

Virtually Unlimited

Start with Express Paint's ***virtual page***. This lets you create a picture of any size and any number of colors, without running out of chip memory. Want to work on several pictures at the same time? Need some spare screens? Cut and paste from one picture to another? No problem.

Then look at the ***undo*** feature. While some programs let you undo your very last change, Express Paint lets you undo any number of changes. Experimentation gets a lot easier, doesn't it? Express Paint can also redo what you've undone. In other words, you can undo many steps, make a few adjustments, and then step forward



again, automatically redo-ing what you've undone. It's wild!

New Special Effects

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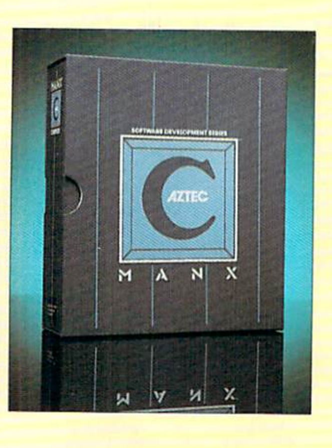
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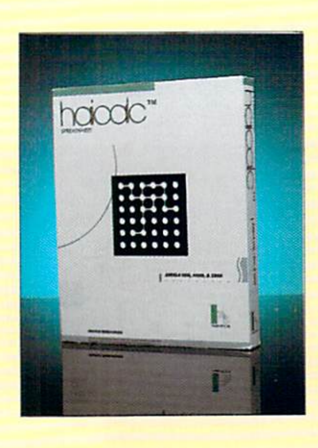
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Synthia	The Other Guys	$ 99.99	high-performance digital synthesizer
Synthia Professional	The Other Guys	NA	16-bit synthesizer
TX802 Master	Sound Quest	$ 175.00	editor/librarian for the Yamaha TX802
TX81Z Master	Sound Quest	$ 150.00	editor/librarian for the Yamaha TX81Z/DX100/DX21
Utilities I	Mimetics Corp.	$ 49.95	SoundScape utilities
Utilities II	Mimetics Corp.	$ 49.95	more SoundScape utilities
Waveform Easel	Silver Software	$ 19.95	design synthesized sounds, written in BASIC
Xpress Patch-FM	Digitools	$ 24.95	interface to Yamaha synthesizers

PROGRAMMING

PRODUCT	COMPANY	PRICE	DESCRIPTION
3D Graphics Library	True BASIC Inc.	$ 69.95	True BASIC libraries
A/C Basic	Absoft	$ 195.00	Amiga Basic compiler
A/C Fortran	Absoft	$ 295.00	Fortran 77 compiler
Advanced String Library	True BASIC Inc.	$ 69.95	True BASIC libraries
Adventure Workshop	SunRize Industries	$ 59.95	adventure-development language lets you create games
AiRT Programming Language	PDJ Software	$ 64.95	icon-based programming language
Amasdis	Aelen Electronics	$ 39.95	assembler/disassembler/linker
Amiga Basic Companion	Omega Star Software	$ 34.95	disk-based Amiga Basic manual
Amiga Structure Automator	Free Spirit Software	$ 49.95	programmer's utility
AmigaDOS Development System	Lattice	$ 500.00	includes DBC III library with source code
AmigaDOS Development System	Lattice	$ 375.00	Lattice C compiler, LSE, and Metascope: The Debugger
AmigaView	ACDA Corp.	$ 79.95	Intuition and graphics object libraries
Amiga FFT C Package	ACDA Corp.	$ 152.00	Fast Fourier Transform routines
APL 68000	Spencer Organization	$ 99.00	APL for the Amiga
ARexx	William S. Hawes	$ 49.95	an implementation of the high-level language ARexx
AssemPro	Abacus	$ 99.95	assembly-language development system
Autogram C	Lee Software	$ 149.00	automatically writes C programs using icons
Aztec C68k/Am-d 4.1	Manx Software Systems	$ 299.00	Ansi-compatible C-development system
Aztec C68k/Am-p 4.1	Manx Software Systems	$ 199.00	Ansi-compatible C compiler
BASIC	Pecan Software Systems	$ 99.95	BASIC for The Power System
Basic Art Coder	Mojo Software	$ 24.00	add graphics to programs without typing
Benchmark Modula-2	Avant-Garde	$ 199.95	turbo-like Modula-2
C Compiler 4.0	Lattice	$ 200.00	compiler, macro assembler, overlay linker
C Cross Reference Utility	MetaSoft Limited	$ 49.95	development utility
C Language Standard Library	Avant-Garde	$ 99.95	lets you move C programs into Benchmark Modula-2
C Toolkit	Software Ingenuity	$ 39.95	source for over 200 functions
C Utility Library	Essential Software	$ 185.00	over 400 functions and a source-code librarian
CAPE 68K	Inovatronics	$ 89.95	Complete Assembler Programming Environment
CB Tree	Peacock Systems	$ 159.00	C programming tool
Compiler Companion	Lattice	$ 100.00	ten utilities for programming in any language
Conversation With A Computer	Jenday Software	$ 34.50	demos and Amiga Basic source reference
dBC III Library	Lattice	$ 150.00	program stand-alone dBase applications
Developer's Toolkit	True BASIC Inc.	$ 69.95	Amiga-specific True BASIC libraries
Devpac Amiga 1.2	HiSoft	$ 99.95	assembler
DSM 1.0d	OTG Software	$ 67.50	assem-compatible MC68000 disassembler
Essential Communications Library	Essential Software	$ 185.00	functions for intelligent, X-modem, timer, and more
Essential Communications Plus	Essential Software	$ 250.00	Essential Comm. Library with data monitor
Essential Graphics	Essential Software	$ 250.00	graphics routines
Example Programs	TDI Software Inc.	$ 24.95	examples of Modula-2 code
Explorer, The	Interactive Analytic Node	$ 49.95	debugging monitor
Extend	SunSmile Software	$ 39.95	Amiga Basic command extension; 50 commands
F-BASIC 2.0	Delphi Noetic Systems	$ 79.95	an enhanced compiled BASIC language



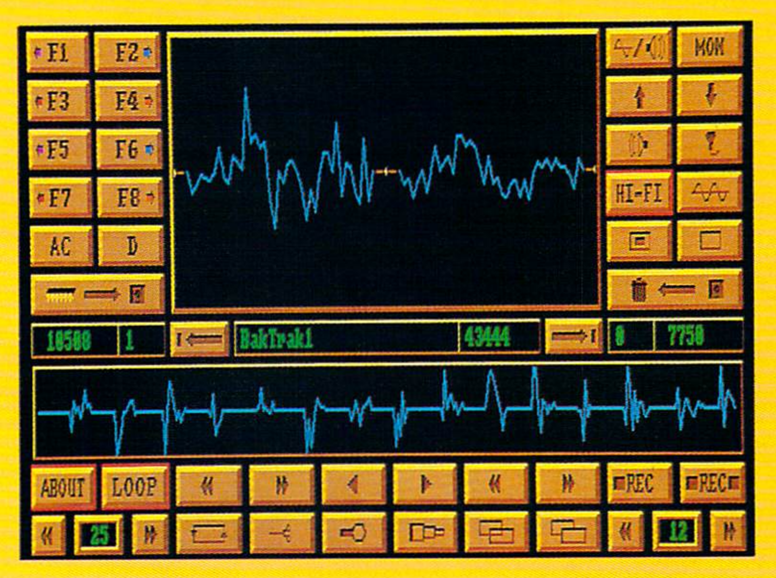
F-BASIC System SLDB	Delphi Noetic Systems	$ 50.00	source-level debugger companion to F-BASIC
FASM68	RockLogic	$ 49.95	6809 cross assembler
FASM85	RockLogic	$ 39.95	8085 cross assembler
File Tools	Sistemas Delta	$ 29.95	True Basic libraries; includes source code
Fortran	Pecan Software Systems	$ 99.95	Fortran language
Fortran 020	Absoft	$ 495.00	Fortran 77 for the 68020
GFA BASIC	MichTron	$ 99.95	expanded version of BASIC language
IFF Libraries Graphic Image	Avant-Garde	$ 99.95	libraries for use with IFF files
Inovatools I	Inovatronics	$ 79.95	programming subroutines
ISO Pascal 2.0	Metacomco	$ 129.95	Pascal compiler
J-Forth Professional	Delta Research	$ 180.00	Forth 83 standard, target compiler, and more
Key to C (Version 2.02)	Data Research Processing	$ 34.95	linkable C extensions
Lattice C + + Compiler	Lattice	$ 500.00	superset of the C language
LDebug	SoftCircuits	$ 99.95	source-level debugger for Lattice C compiler
Library Source	Manx Software Systems	$ 300.00	library and source code
Lint for the Amiga	Gimpel Software	$ 98.00	C diagnostic utility
LSE	Lattice	$ 100.00	Lattice Screen Editor with C error-tracking
M2Amiga	Interface Technologies	$ 249.00	Modula 2 compiler
MacLibrary	Lattice	$ 100.00	Amiga calls that emulate Mac Toolkit
Macro Assembler	Metacomco	$ 99.95	Amiga 68000 macro assembler
Metascope: The Debugger	Metadigm	$ 95.00	examine and change executable code
Microsoft C Optimizing Compiler 5.0	Microsoft	$ 450.00	development package for the professional
Microsoft Quick C	Microsoft	$ 99.00	programming environment for the first-time C user
Modula-2	Pecan Software Systems	$ 99.95	compiler for The Power System
Modula-2	TDI Software Inc.	$ 299.95	commercial version
Modula-2	TDI Software Inc.	$ 99.95	compiler
Modula-2	TDI Software Inc.	$ 149.95	developer's version
MS-DOS Amiga Cross Compiler	Lattice	$ 500.00	creates Amiga programs on an IBM system
Multi-Forth	Creative Solutions Inc.	$ 99.00	interactive, multitasking high-level environment
Panel	Lattice	$ 195.00	create custom screens
Pascal	Pecan Software Systems	$ 99.95	UCSD Pascal compiler
PDQ Pascal	Pecan Software Systems	$ 79.95	introductory UCSD Pascal
Pilot	Flight Training Devices	$ 39.95	authoring language for instructional programs
Power System, The	Pecan Software Systems	$ 129.95	development system and compiler of your choice
Power Toolbox I	Pecan Software Systems	$ 399.95	symbolic debugger, analysis toolkit, and more
Power Toolbox II	Pecan Software Systems	$ 499.95	performance monitor, cross-assembler, CG package
Power Windows 2.5	Inovatronics	$ 89.95	interactive interface-design tool
Pro-ASM-6809	Prolific Inc.	$ 85.00	macro cross-assembler for the 6809 family
Pro-Asm-8051	Prolific Inc.	$ 85.00	macro cross-assembler for the 8051 family
Pro-Asm-8085	Prolific Inc.	$ 85.00	macro cross-assembler for the 8085 family
Pro-Asm-Z80	Prolific Inc.	$ 85.00	macro cross-assembler for the Z80 family
PROFASM65	RockLogic	$ 39.95	6502 cross assembler
Professional Text Engine	Zirkonics Corp.	$ 79.95	programmable multi-file text editor
Prolog	Metacomco	NA	Prolog language with full intuition interface
QEDit	Subliminal Software	$ 30.00	programming editor
Quelo Cross Assembler Package	Avocet Systems Inc.	$ 750.00	supports 68000, 010, 020, 030, coprocessors
Quelo Cross Assembler, Source Code	Avocet Systems Inc.	$5500.00	full
Quelo Cross Assembler, Source Code	Avocet Systems Inc.	$3500.00	minimal
Runtime Package	True BASIC Inc.	$ 69.95	produces stand-alone True BASIC programs
Screen Mapper	Northwest Mach. Specialties	$ 89.95	programming utility
Simplified Amiga Libraries	Avant-Garde	$ 99.95	library collection for use with Benchmark Modula-2
SmartFields	Software Ingenuity	$ 39.95	replacement for Intuition string gadgets
Sorting and Searching	True BASIC Inc.	$ 69.95	True BASIC libraries
Source Builder	Software Integration Solution	$ 99.95	automates source-code development
Source Level Debugger	Manx Software Systems	$ 75.00	debugger for use with the Aztec C system
ToolCaddy Docs—Functions	The ToolCaddy Works	$ 39.95	on-line help covers all Amiga function calls
ToolCaddy Docs—Mnemonics	The ToolCaddy Works	$ 39.95	covers all Motorola 68XXX instruction mnemonics
ToolCaddy Docs—Structures	The ToolCaddy Works	$ 39.95	on-line help covers structures contained in include files
ToolCaddy, The	The ToolCaddy Works	$ 49.95	assembly-language programming support
Toolkit	Metacomco	$ 49.95	disassembler, MAKE, AUX CLI

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Toolkit 2	True BASIC Inc.	$ 69.95	developers' toolkit
Toolkit 3	True BASIC Inc.	$ 69.95	sorting and searching library
True BASIC Language System	True BASIC Inc.	$ 99.95	structured BASIC language system
Tshell	Metran Technology	$ 49.95	development shell
UBZ Forth	UBZ Software	$ 85.00	FORTH-83 compatible
UNH Prolog	University of New Hamphire	$ 75.00	standard Prolog interpreter
User Interface Library	Sistemas Delta	$ 29.95	True BASIC libraries; includes source code
WShell	William S. Hawes	$ 50.00	CLI-compatible command shell supports ARexx

SPREADSHEETS

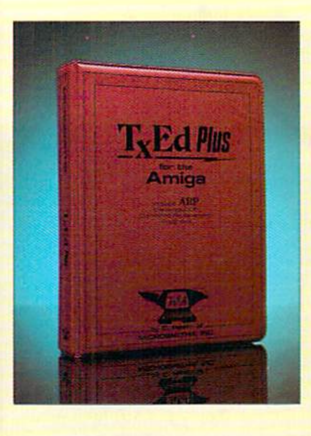
PRODUCT	COMPANY	PRICE	DESCRIPTION
Analyze!	Micro-Systems Software	$ 99.95	graphs
Haicalc	Haitex	$ 59.95	Intuition-based, print macros, graphs
Logistix	Precision Incorporated	$ 99.95	spreadsheet and project planner
MaxiPlan 500	Oxxi Inc.	$ 149.00	for the A500; available in French and German
MaxiPlan Plus	Oxxi Inc.	$ 199.00	graphics, macros; French and German versions available
Q-2-Q	Banana Software	$ 49.95	idea spreadsheet
Super Plan	Precision Incorporated	$ 149.95	spreadsheet/time manager with ARexx port
Unicalc 1.1	Lattice	$ 79.95	Intuition based; 256 columns × 8192 rows
VIP Professional	ISD Marketing	$ 99.95	Lotus 1-2-3, Version 1A work-alike

TELECOMMUNICATIONS

PRODUCT	COMPANY	PRICE	DESCRIPTION
A-Talk III	Oxxi Inc.	$ 99.00	includes Tektronics emulation
AmicTerm	Haitex	$ 99.95	telecommunications package
Amiga Kermit and Compuserve	TDI Software Inc.	$ 29.95	Kermit protocol and $50 of CompuServe time
Amiga Plato Access Disk	Subliminal Software	$ 30.00	terminal emulator for use with Control Data's Plato
AmigaTerm	Commodore	$ 49.95	simple telecommunications
BBS-PC!	Micro-Systems Software	$ 149.95	bulletin-board system
Custom-BBS!	Celestial Data Systems	$ 100.00	customizable bulletin-board system
Diga!	Aegis	$ 79.95	telecommunications with Doubletalk
Dr. Term Professional	Progressive Peripherals	$ 69.95	professional terminal program
MacroModem	Kent Eng. and Design	$ 69.95	telecommunications with macros
Middleman	Benaiah Computer Products	$ 59.95	VT100 emulation, mimics keypad
Middleman II	Benaiah Computer Products	$ 149.95	VT100, Tektronics 4105, maps keypad
Online!	Micro-Systems Software	$ 69.95	telecommunications
Professional Bulletin Board	Incognito Software	$ 149.99	enhanced Turnkey system; works with Sky Paint
SKE Term	SKE Software	$ 49.95	terminal package
Turnkey Bulletin Board	Incognito Software	$ 99.99	send graphics via modem
XCS	American Pacific Exec. Sys.	$ 175.00	multitasking Wide Area Networking system

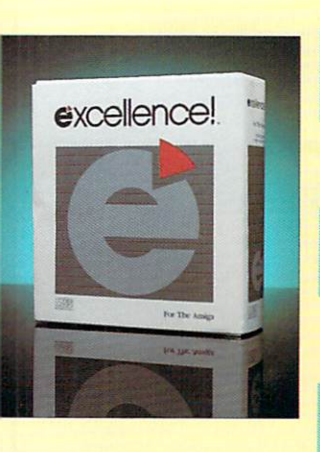


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UTILITIES

PRODUCT	COMPANY	PRICE	DESCRIPTION
64 Emulator 2 with Cable, The	ReadySoft	$ 59.95	emulator with cable for C-64 peripherals
64 Emulator 2, The	ReadySoft	$ 39.95	emulates the Commodore C-64
Amiga Companion Series, The	Omega Star Software	$ 29.95	Intuition-based interactive help system
Amiga Editor	TDI Software Inc.	$ 49.95	text editor and source code
Amiga Multi-User Software	Conceptual Computing	$ 120.00	serve multiple terminals with multiple windows
Amiga PostCode	FBN Software	NA	pop-up index to over 12,000 Australian postal codes
Amiga SmartKey	FBN Software	NA	create memory-resident keyboard macros
AmigaDOS Express	Bantam Software	$ 29.95	disk-based AmigaDOS manual; covers through 1.2
AmigaTalk	Inspired Interfaces	$ 225.00	Intuition/CLI/application access with speech
ATI-Link	Lightning Publishing	$ 50.00	IFF to Targa conversion
BAD	MV Micro	$ 39.95	Blitz-A-Disk; disk optimizer
BOBshop	Revolution Software	$ 49.95	create and edit GELs
CLImate	Progressive Peripherals	$ 39.95	access AmigaDOS from Workbench
Comhair	Bernd und Torsten Keller	NA	match hair styles with your face on screen
CS-30 Interface	ACDA Corp.	NA	use the Ricoh color scanner with the Amiga
CygnusEd Professional	CygnusSoft Software	$ 99.95	word processing/programming editor
DeluxeHelp for Calligrapher	RGB Video Creations	$ 44.95	on-line interactive tutorial runs with Calligrapher
DeluxeHelp for DeluxePaint	RGB Video Creations	$ 24.95	on-line interactive tutorial runs with DeluxePaint
DeluxeHelp for DeluxePaint II	RGB Video Creations	$ 34.95	on-line tutorial runs with DeluxePaint II
DeluxeHelp for Digi-Paint	RGB Video Creations	$ 34.95	on-line interactive tutorial runs with Digi-Paint
DeluxeHelp for PageSetter	RGB Video Creations	$ 34.95	on-line interactive tutorial runs with PageSetter
DeluxeHelp for Photon Paint	RGB Video Creations	$ 34.95	on-line interactive tutorial runs with Photon Paint
Demonstrator, The	Meridian Software Inc.	$ 39.95	automate Amiga demos
Descartes!	DTM Werbug & EDV GmbH	$ 39.95	function-graphing tool; IFF-compatible output
DigiScope	ACDA Corp.	$ 79.95	digital oscilloscope emulation
Dimmer!	PAR Software	$ 19.95	dim your screen
Disk 2 Disk	Central Coast Software	$ 49.95	file transfer, C64/128 to Amiga
Disk Library	ClassicCompu	$ 49.95	disk-organization utility
Disk Mechanic	Lake Forest Logic	$ 89.95	collection of utilities
DiskMaster	Progressive Peripherals	$ 49.95	access AmigaDOS from Workbench, ARC files
DisKwik 2.0	Tigress	$ 49.95	disk editor and repair utility
Dos 2 Dos	Central Coast Software	$ 55.00	file transfer MS DOS and Atari ST to and from Amiga
Doug's Color Commander	Seven Seas Software	$ 29.95	clone Doug's interface to other programs
Encore	Elipsys	$ 69.95	record and replay mouse movement and keystrokes
EQPlot	Scientific Software	$ 35.00	equation plotter
ES-5C Programmable Sci Calculator	Emusoft Corp.	$ 19.95	similar to HP-15C
Expert System Kit	Interactive Analytic Node	$ 69.95	toolkit, interface with other OS
EZ-Backup	EZ-Soft	$ 49.95	file-backup utility manages data on backup disk
FACC II	ASDG	$ 34.95	disk performance enhancer
Flipside!	Micro-Systems Software	$ 29.95	prints spreadsheets sideways
Flow	New Horizons Software	$ 99.95	outline processor
Font-Works	Associated Computer Ser.	$ 99.95	scans IFF images to produce fonts
Fruit 2 Friend	Top Disk Software	$ 59.95	enhanced Apple II ProDOS/DOS 3.3 file maintenance
Fruit to Friend	Top Disk Software	$ 49.95	read and write to Apple IIe ProDOS and DOS 3.3 disks
Gizmoz	Digital Creations	$ 69.95	desk accessories
GOMF 3.0	Hypertek/Silicon Springs	$ 34.95	error-handler lets you see data after a crash
HexDump	Northwest Mach. Specialties	$ 19.95	hex dump utility
Holmes!	DTM Werbung & EDV GmbH	$ 44.95	disk and file-repair utility
I.C.E.	King Publishing	$ 89.95	calculator construction and function plotting
ICONizer	Royal Software	$ 29.95	create custom icons
Jet Set	C Ltd.	$ 49.95	driver and utilities for HP LaserJet Plus
KickWork	Amigo Bus. Computers	$ 39.95	one disk Kickstart/Workbench
LaserUp! Utilities 1	S. Anthony Studios	$ 39.95	IFF to PostScript
LaserUp! Plot	S. Anthony Studios	$ 49.95	Aegis Draw files to PostScript



LaserUp! Print 1.2	S. Anthony Studios	$ 89.95	print screen to LaserWriter, color separation
LTR	MetaSoft Limited	$ 59.95	print spooler
Magellan	Emerald Intelligence	$ 195.00	artificial intelligence
MagiCode	Magic Circle	$ 30.00	encrypts computer data
Mastering CLI	Graphic Expressions	$ 39.95	interactive DOS tutorial
Mathbase	Techtype	NA	make tables and graphs of transcendentive functions
Micro-Shell	MetaSoft Limited	$ 79.95	enhanced AmigaDOS interface
Mirror Hacker Package, The	Compumed	$ 49.95	disk analysis
Mirror, The	Compumed	$ 49.95	disk copy
Mouse-Free A-Talk Macros	Inspired Interfaces	$ 75.00	on-line talking help for A-Talk III telecomm.
Multi-Prefs	Soft-Link	$ 29.95	time-saving utilities
MultiBase	Conceptual Computing	$ 249.00	access files from several terminals simultaneously
Outline!	PAR Software	$ 79.95	idea and list processor
PED	MicroDimensions	$ 129.95	programmer's text editor
PlotPrint	Hi-Tech Graphics	$ 100.00	utilize full printer resolution with CAD; 68020/68881
PlotPrint	Hi-Tech Graphics	$ 50.00	utilize full printer resolution with CAD programs; 6800
Printer Driver	Lightning Publishing	$ 30.00	Quadram QuadJet and NEC CP6 preferences drivers
Printer Driver	Lightning Publishing	$ 50.00	HP PaintJet, NEC-CP7, and NLQ-324C drivers
Printer Drivers	Tychon Technologies	$ 69.95	PJ-1080A, Tandy CGP220, Quadram QJ9000; TY100, more
Printer Drivers	ACDA Corp.	NA	printer drivers for Mitsubishi printers
Printer Drivers	Radical Eye Software	$ 100.00	driver sets for laser, Epson MX and FX, 24-pin, more
Project D	Fuller Computer Systems	$ 49.95	integrated disk utility
Quarterback	Central Coast Software	$ 69.95	hard-disk backup utility
RawCopy	Micro Systems International	$ 59.95	copy utility
saf-T-net	Metadigm	$ 49.95	hard-disk backup utility
Shell	Metacomco	$ 69.95	Unix-like AmigaDOS interface
Software Enhancer	Commodore	$ 14.95	DOS 1.2 for Amiga 1000
Soundshop	Revolution Software	$ 49.95	create and edit waveforms
SpeakEasy	Inspired Interfaces	$ 350.00	Amiga becomes speech synthesizer for Apple, IBM
STU	Custom Services	$ 29.95	diagnostic System Test Utility
Super Parameters	Utilities Unlimited	$ 29.95	disk-backup utility
SuperBack	The Disc Company	$ 79.95	hard-disk backup utility
SysFont	Eraware	$ 24.95	text display fonts
System Monitor	Zen Software	$ 49.95	monitors memory usage, other parameters
The Analyst	Luna C Software	$ 89.95	monitors system operation
TxEd Plus	Microsmiths	$ 79.95	ARexx-compatible text editor, disk accelerator
Tychon Utilities	Tychon Technologies	$ 49.95	disk utilities
UltraDOS Utilities Module I	Free Spirit Software	$ 59.95	hard-drive backup utility
Virus Infection Protection	Discovery Software	$ 49.95	virus vaccination for disks
WBExtras	Luna C Software	$ 39.95	access any Workbench tool from menu
WordPerfect Library	WordPerfect Corp.	$ 129.00	desktop accessories and productivity tools
ZING!	Meridian Software Inc.	$ 79.95	access AmigaDOS from Workbench
ZING!Keys	Meridian Software Inc.	$ 49.95	macro utility

WORD PROCESSING

PRODUCT	COMPANY	PRICE	DESCRIPTION
BeckerText	Abacus	$ 150.00	columns, dictionary, calculations
DesignText	Designtech Business Systems	$ 129.00	speller, database, mail merge, graphics
Eartype	Jumpdisk	$ 3.00	word processor for the seeing-impaired
excellence!	Micro-Systems Software	$ 299.95	PostScript-compatible WYSIWYG word processor
Fleet Check	Professional Software Inc	$ 39.95	dictionary and thesaurus
GoldSpell II	Gold Disk	$ 44.95	spelling checker
KindWords	The Disc Company	$ 99.95	WYSIWYG, imports graphics, spelling checker
LPD Writer	Digital Solutions	$ 69.95	mail merge, spelling checker



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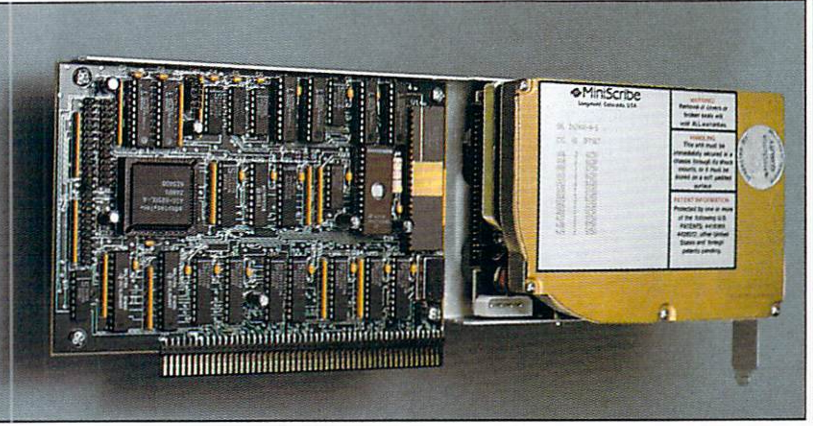
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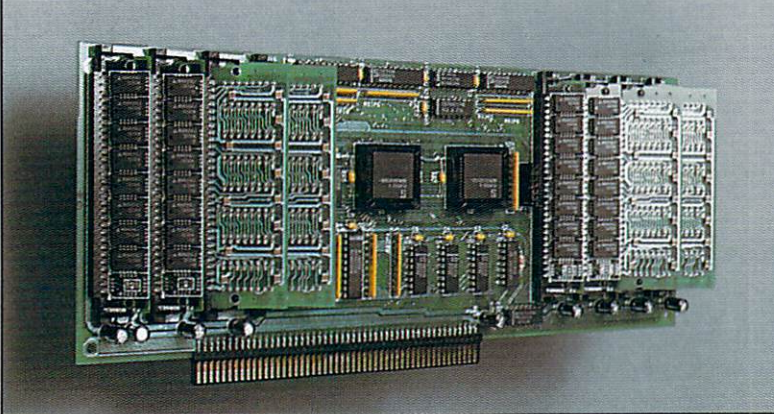
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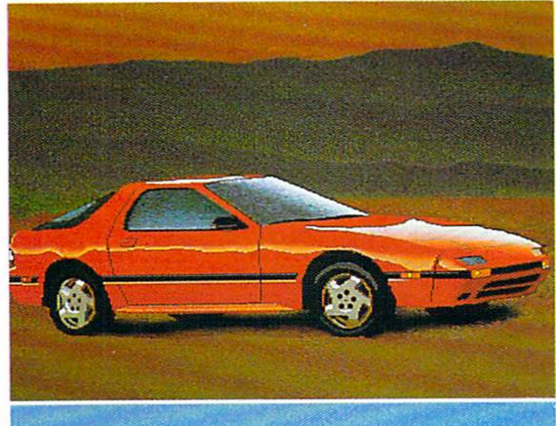
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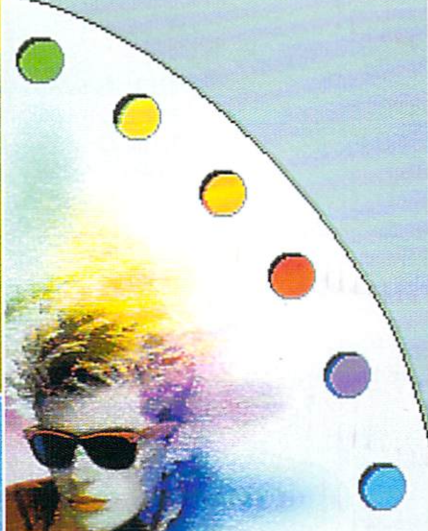
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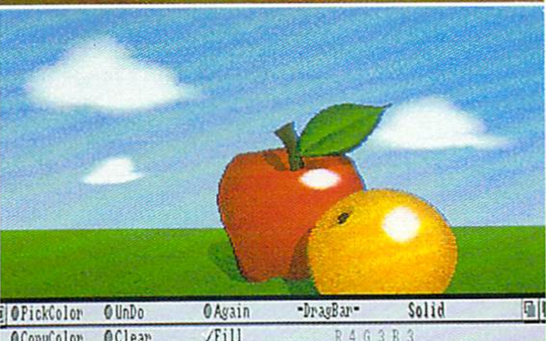
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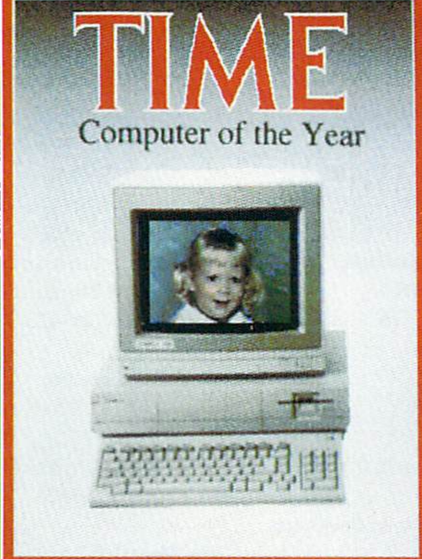
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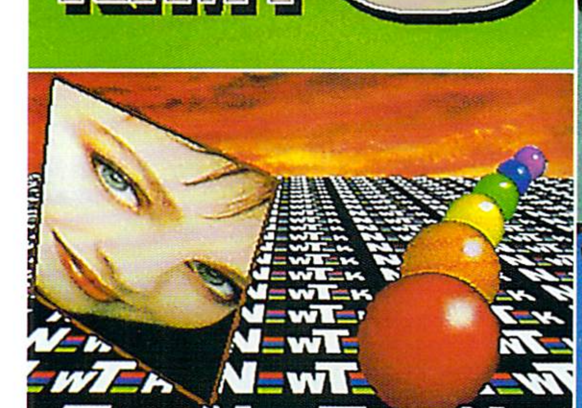


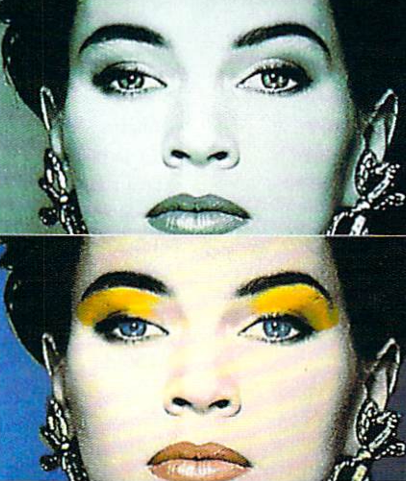












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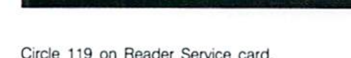
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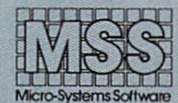
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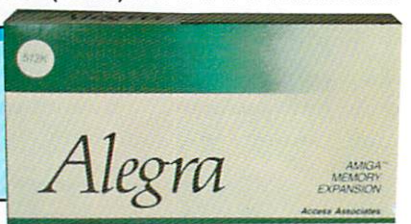
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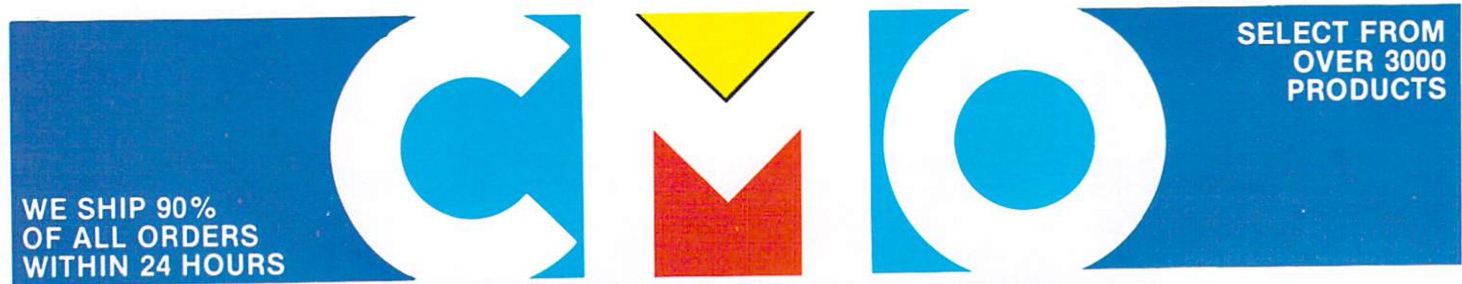
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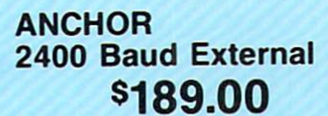
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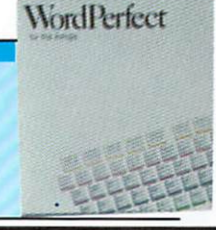


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LEARNING FROM A "PRO"

With Superbase Professional's powerful DML, you can still retain your amateur status in BASIC while learning to run, jump, and throw like a pro when it comes to sophisticated database programming. Here's a simple tutorial to help get you over the first hurdle.

By Bill Catchings and Mark L. Van Name

To make use of Precision Incorporated's sophisticated data-management system, Superbase Professional, you need not do any programming at all. Many of its powerful features and numerous options are available to you straight off the shelf. Superbase does, however, contain its own BASIC-derived programming language, DML (Data Management Language). With some rudimentary knowledge of BASIC, you can use the DML to tailor customized database applications to your own special business or personal needs.

To introduce you to Superbase programming, we have devised a simple "telephone contact" application through which we can take you on a quick guided tour of Superbase's DML. We assume that you are familiar with the Amiga, a little bit of BASIC, and the basics of using Superbase Professional forms and reports. If you have never used Superbase, run through its tutorial lessons on forms and reports—they won't take long, and you need only the fundamentals to run our application. We won't show you anywhere near the full power of the DML, but we will cover all the bases in each major area. (For a feature-length review of Superbase Professional, see "Big League Pro," p. 56, in the June '88 issue of *AmigaWorld*.)

Our application is a very simple contact system that allows you to maintain information about telephone conversations. You can keep a little information (first and last name, one address line, and one telephone number) about each person, as well as some brief notation (date, time, and a comment) about each phone conversation. We provide only the skeleton of a full contact application, but you can use that skeleton as a base for your own, improved version.

INTO THE STARTING BLOCKS

To test this application, select Edit from Superbase's Program menu and type in the listing that accompanies this article (see Listing 1). When you are done, choose Save from the Program menu and save it in a file with a name such as "Contacts." Do not add the Superbase program extension (.sbp); that will be done automatically. Then choose Run from the Program menu.

The application has two menus: Contacts and Calls. The Contacts menu lets you enter information about a person, edit that information, list all of the information about all of the contacts, and exit. The Calls menu lets you enter information about a new call with a person (who need not al- ►

ILLUSTRATED BY MYRON GROSSMAN

ready be in the database), list all of the calls for a person, and list all of the calls in the database. To get the feel of the application, enter several names and calls, and try each of the menu choices.

Superbase, like most interactive application builders, is designed around a few basic application-building tools: database definition, menus, data-entry and update forms, reports, and miscellaneous functions, such as calculations and batch file updates. You can use all of these tools from the DML.

Superbase also contains a powerful form builder, but for the sake of simplicity and space we use only Superbase's default forms.

The core of any application should be the database design. Our contact application lends itself well to two separate files, which Superbase calls databases. In one (Names) we keep information about people, while in the other (Calls) we record the phone calls. We connect the information in these two files relationally, with a matching field in each. We use Superbase's serial number function, SER, to store with each Names record its serial, or record, number. When we enter a call to a person, we store that person's serial number in the Calls record.

Before we walk through the code, we will need to examine a few DML basics. DML is a derivative of BASIC, to which the developers have added many database- and application-definition functions. Because we are assuming some knowledge of BASIC on the reader's part, we will avoid the parts of the DML that come straight from BASIC and concentrate on the new functions.

Yet, even the most experienced BASIC user should be careful: DML is not completely compatible with BASIC. As old-time BASIC programmers, we initially felt right at home, but we stumbled quickly. For example, PRINT does not print to the screen—it sends output to the printer. To display information on the screen, you instead use

DISPLAY <string>

You can also send your output to Superbase's "current output device" by using

? <string>

Any PRINT command makes all subsequent ? functions send their output to the printer, while a DISPLAY command sends their results to the screen. The ? function is a handy way to display reports, because it allows you to see them on the screen during development and to later switch them easily to the printer. You should use DISPLAY with messages so that they will always appear on the screen.

Building on a Solid Foundation

Let's dig into the code. We use many small subroutines, so the easiest way to understand the code is to walk through its highest level and then spiral down into the details.

We begin by displaying a start message. We also use the SET function to force our forms into Superbase's RECORD VIEW format, which is both the default and the easiest to use to edit records. Because it is the default format, this step at first may seem unnecessary. If you run other Superbase forms before you start this application, however, the default would be whatever format you last used. For instance, if you last used a form in its FORM view, our forms would also appear in that format if you did not first use the SET function.

We then open our two files with the OPEN FILE command. Before doing so, however, we use ON ERROR to set an error-handling routine—*nonames* and *nocalls*, respectively. *nonames* tells you that the Names file does not exist and asks if you want to create it. If you do, it calls the *initnames* subroutine to create that file. If you do not want to create the file, *nonames* stops the application. *nocalls* functions similarly for the Calls file, but it uses *initcalls* to create that file.

Before we get into the file-creation subroutines, we should mention a few other important points about programming with Superbase. First, we could not find a list of error numbers anywhere. You can get this list, however, by using the short sample program on page 5-50 of the Forms Editor and Programming Language manual. We recommend that you run that program and save the list.

Second, both of the above subroutines use an important DML function: REQUEST. This function displays an AmigaDOS requester. Its parameters ►

Listing 1. Telephone contact application.

```
REM Begin by telling the user that we are starting our application.
REM Also, set the view format to record.  While it is the default,
REM this statement forces us to use record view format, even if the
REM user left it in another format when he used Superbase previously.

DISPLAY NEWLINE "Starting Contacts application."
SET RECORD


REM Open the contact names file, which Superbase calls a database.
REM IF that file does NOT exist, we get an error and go to nonames.
REM That subroutine prompts the user and creates a new database file.
REM The second ON ERROR statement clears the error handler.

ON ERROR GOTO nonames
OPEN FILE "Names"
ON ERROR


REM Duplicate the same procedure for the file of calls
REM (the CALL database).

ON ERROR GOTO nocalls
OPEN FILE "Calls"
ON ERROR


REM Create a menu for the names portion of the application.
REM Call it the "Contacts" menu.
```

Listing continued on p. 80

are two lines of dialog and a type, and three options: a return code, a string variable that can contain a response, and the length of the string box. In these two routines we use *ans%* as the return code variable. It is 1 if you click on OK, 0 if you click CANCEL.

The type field lets you choose from Superbase's 19 different types of requesters. Only the first five of these really matter for most applications. Type 1, which we use in these two routines, offers OK or CANCEL, while type 0 offers only OK. Types 2 and 3 are like 0 and 1, respectively, except that they time out after two seconds. Type 4, which we use in the *getname* subroutine, lets you input a string before you click OK or CANCEL (in *getname* that response goes into the variable *name$*).

Finally, both of these routines stop the program by calling the same termination routine, *exit*, which displays a termination message, closes all of the open files, and then clears the screen so that you can start on your next task with a clean screen.

Back to the file-creation routines. Both *initnames* and *initcalls* follow the standard steps for creating a Superbase database file. *initnames* first displays a file-creation message, and then CREATEs an empty file called Names. We define each of that file's fields with the ADD command. When we are done with the field definition, we use MAKE to save our work, and then we return.

The ADD command offers many options. Its first major part is the actual field definition, a quoted string with several components separated by semicolons. The first component is the field's name. The second is a list of attributes, the most important of which is its data type. Most of the fields in this application are simple text fields (TXT), although some are date (DAT), time (TIM), and number (NUM). You can add other attributes as well, including whether a field is required (REQ), the basis of an index (IDX), a constant (CON), and read-only required (RDQ). (Superbase offers several other attributes as well.)

You then give further information about the field's format. For strings this is simply the length. For numeric fields, such as our *Link* fields, you can give a mask, or pattern. We use 9999 for our *Link* fields, which makes them integers of up to four digits. You can also give a layout pattern for date and time fields, as we did for *CallDate* and *CallTime*. The final attributes in this section are the row and column at which the field will appear when you use Superbase's Form view on those records.

The second major ADD parameter is an optional formula string. The formula string lets you control the value of a field. We use it for the *Link*, *CallDate*, and *CallTime* fields. We use the TODAY and NOW functions to fill in automatically the *CallDate* and *CallTime* fields with the current date and time. We also make them both read-only and constants. This combination of attributes lets us fill them in auto- ►

```
 REM Make it the first menu and give it a choice to exit the
 REM whole application, as well as choices to work on records
 REM in the file of names.  Note the space padding after the
 REM shorter choices to make the menu look neat.

 MENU 1,0,1,"Contacts"
 MENU 1,1,1,"List existing names"
 MENU 1,2,1,"Enter a new name   "
 MENU 1,3,1,"Edit a name        "
 MENU 1,4,1,"Exit application   "


 REM Create a second "Calls" menu for managing calls.

 MENU 2,0,1,"Calls"
 MENU 2,1,1,"List a contact's calls"
 MENU 2,2,1,"List all calls        "
 MENU 2,3,1,"Enter a new call      "


 REM Before we start to wait for the user to enter a menu
 REM choice, we clear the startup message (and, if they
 REM happen, the file creation messages), from the screen.

 CLS


 REM This is the main loop where we wait for the user
 REM to ask us to do something.  We activate our menus
 REM and then loop until we see that the user selected
 REM one of the menus.
 REM We call the appropriate subroutine to handle the
 REM menu that the user selected.

mainloop:
 MENU ON menunum%,itemnum%
 ON menunum% GOSUB contmenu,callmenu
 GOTO mainloop


 REM The contmenu subroutine handles the choice on the Contacts menu
 REM that the user selected.
 REM The order in which the routines appear in the GOSUB statement
 REM must match the numbers of their corresponding choices in the
 REM in the original MENU command.

contmenu:
 ON itemnum% GOSUB listnames,entname,editname,exit
 RETURN


 REM The callmenu subroutine similarly handles the call menu.

callmenu:
 ON itemnum% GOSUB listcall,listallcalls,entcall
 RETURN


 REM The initnames subroutine creates the names database.

initnames:
 DISPLAY "Creating the contact names database"
 CREATE "Names"
 ADD "Firstname;TXT REQ;20;1,10"
 ADD "Lastname;TXT REQ IXD;20;2,10"
 ADD "Address;TXT;80;3,10"
 ADD "Phone;TXT;15;4,10"
 ADD "Link;NUM CON RDQ;9999.;5,10","SER(~Names~)"
 MAKE "Names"
 RETURN


 REM The initcalls subroutine creates the calls database.

initcalls:
 DISPLAY "Creating the contact calls database"
 CREATE "Calls"
 ADD "Link;NUM REQ IXD;9999.;1,10"
```

Listing continued on p. 82

matically when we create a new record and then stops anyone from changing them later.

The *Link* field in the Names database is also a read-only constant. We use the SER function on the Names file to get the record number of this record. This is a unique number that we use to link the files. We have to use tildes (~) instead of quotes around the file name because we are already inside quotes.

Choosing the Records to Pursue

Once we have defined the files, we use MENU to define our two menus. These are standard Amiga pull-down menus. We list their choices in order, with choice 0 being the menu's title. We pad the length of each choice string in the menu to the length of the longest one, so that the menu will appear uniform and attractive.

Then we sit in a main loop and wait for the user to make a choice. When this occurs, MENU ON gets the numbers of the menu and menu choice selected and then turns off the menus. Note that DML menu access differs from the syntax used in Amiga Basic. You need to be careful about this loop, because it is a busy wait that repeats endlessly, not a good idea in a multitasking environment. We use the ON GOSUB statement to call the first subroutine (*contmenu*) if menu 1 is chosen, or the second subroutine (*callmenu*) if menu 2 is selected. If you choose nothing (a menu value of 0 from MENU ON), ON GOSUB does nothing and we iterate.

contmenu and *callmenu* both use ON GOSUB on the number of the user's choice to call the subroutine to handle that choice.

The *entname* subroutine demonstrates how simple it is to set up a Superbase data entry. Because we opened two files when we started, we first have to make one (here, Names) the current file with the FILE command. Then we create an empty, or BLANK, record and use the ENTER command to get Superbase's default form to prompt you to fill in the fields. When you exit that form, we save the record (STORE) and return.

In *editname* we change this procedure slightly to let you edit a record. Instead of a blank record, we need to bring up the one that you want to edit. We use the *getname* subroutine to ask you which contact person you want. We make that record the current record and then follow the same ENTER/STORE process.

entcall uses still another wrinkle on this basic approach. It also asks you for the name of your contact. That person's Names record becomes the current Names record. Then we use FILE to switch the current file to Calls, and create a blank Calls record. We fill in its *Link* field with the value of the *Link* field from the Names record we just got, thereby linking this new call to the correct person.

getname is the longest subroutine, and one that ►

```
 ADD "CallDate;DAT CON RDQ;mm/dd/yy;2,10","TODAY"
 ADD "CallTime;TIM CON RDQ;hh:mm;3,10","NOW"
 ADD "Note;TXT;255;4,10"
 MAKE "Calls"
 RETURN


 REM The entname subroutine lets the user enter new contact names.
 REM We first make the names file our current file.
 REM Then we bring up an empty names record and let the user fill
 REM it in with SuperBase's built-in forms handler.  It will prompt
 REM the user for the individual fields.
 REM When the user exits the form, we save the record and return.
entname:
 FILE "Names"
 BLANK
 ENTER
 STORE
 RETURN


 REM The editname subroutine asks the user for the name of someone
 REM whose names record he wants to enter.
 REM If he gives a non-existent name, we just return.
 REM Otherwise, we use ENTER to make it the current record and let
 REM the user edit it.
 REM When he is done, we save the record and return.

editname:
 GOSUB getname
 IF retcode% = 0 THEN RETURN
 ENTER
 STORE
 RETURN


 REM The entcall subroutine lets the user enter new calls.
 REM We first prompt the user for the name of the contact.
 REM If no such person is in our database, we return.
 REM Otherwise, we make the calls file the current file, and
 REM then bring up an empty calls record.  Before we let the
 REM user edit that blank record, however, we fill in the correct
 REM link information and use SuperBase's form handler to get the
 REM rest of the information.
 REM Note that the definition of the Calls file causes Superbase
 REM to fill in the CallDate and CallTime fields automatically for
 REM the user.
 REM When the user is done, we save the new record and return.

entcall:
 GOSUB getname
 IF retcode% = 0 THEN RETURN
 FILE "Calls"
 BLANK
 Link.Calls = Link.Names
 ENTER
 STORE
 RETURN


 REM The getname subroutine is a key one that we use throughout
 REM the application.
 REM We ask the user for a name with a Superbase requester that
 REM lets him enter a string.
 REM If at any point the user chooses Cancel (a 0 return code),
 REM we Return.
 REM If he enters a name, we use a SELECT WHERE statement to see
 REM if the name he entered is in our names file.
 REM If it is not, we go to the notfound subroutine.
 REM If it does exist, we then check to see if it is unique.
 REM If it is, we're done.
 REM If it is not unique, we ask the user to enter a first name
 REM so that we can try to find the correct user.
 REM If there is no match now, we again go to the notfound subroutine.

getname:
 REQUEST "Give the name of a contact","",4,retcode%,name$,20
 IF retcode% = 0 THEN RETURN
 FILE "Names"
```

Listing continued on p. 84

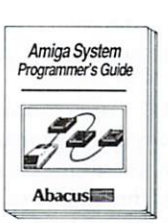
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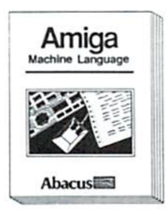
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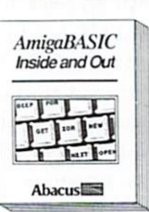


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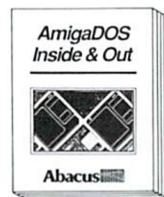


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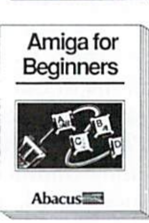
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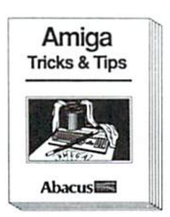
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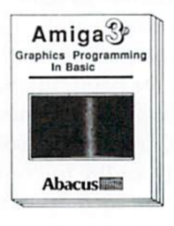


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we use from several places. It has to handle new contacts and contacts with the same last name. We first ask you to enter a last name. We then use the query function, SELECT, to set up a query filter and see if there are any records in the Names file with that name, and then we SELECT the FIRST one that qualifies. We use LIKE rather than = so that the search will ignore case.

If SELECT FIRST returns nothing and leaves us at the end of the file, then no record matched the last name entered. If that happens we call the subroutine *notfound*, which asks you if you want to create that contact; if so, it calls *entname* to let you go ahead.

If SELECT FIRST returns one record, we see if there are any other matches, because two people could have the same last name. If SELECT NEXT leaves us at the end of the file, then there was only one match. We go back to the first record and return it. If SELECT NEXT yields another matching record, we ask you for a first name. Then we define a query filter with both the first and last name. If nothing matches, we once again call *notfound* and give you the chance to create a new record. If there is a match, we return it.

We assume in this procedure that no two records have the same first and last names, an assumption that could be wrong. To make the routine handle that case, add the SELECT NEXT and test logic we used earlier, and then decide how you want to choose from the matching records.

The remaining routines (*listnames*, *listallcalls*, *listcall*) display reports. We use ? in *listallcalls* and *listcall* so that you can easily send their outputs to the printer.

We use the @ operator to control the starting column of each field and text piece, and the & operator to give the column's length on the report. We then use a basic set of building blocks to define the other parts of the reports.

HEADING lets us place text, such as a title or column headings, at the top of each page. UL turns on underlining, while ATTR OFF turns off all special display or print attributes.

The SELECT statement determines both what fields we will print and where they will appear. We again use @ and & to control field placement. SELECT lets you include fields from several linked files, as we do in *listallcalls*.

The WHERE clause lets you enter a query filter to control which records you want. In *listallcalls* we print the records with matching *Link* fields, so that we can list each name with its matching calls. We do not print contacts for whom we have no calls. In *listcall* we first call *getname* and then use WHERE to get only the calls for the single contact name (and, thereby, the *Link* value) that you entered.

We use the ORDER command to sort the records we retrieve. We sort primarily on last name and then on first name. We conclude each SELECT ►

```
 SELECT WHERE Lastname LIKE name$
 SELECT FIRST
 IF EOF ("Names") THEN GOSUB notfound:RETURN
 SELECT NEXT
 IF EOF ("Names") THEN SELECT FIRST :RETURN
 REQUEST "Give the first name of the contact","",4,retcode%,fname$,20
 IF retcode% = 0 THEN RETURN
 SELECT WHERE Lastname LIKE name$ AND Firstname LIKE fname$
 SELECT FIRST
 IF EOF ("Names") THEN GOSUB notfound
 RETURN


 REM The notfound subroutine tells the user that the name he entered
 REM was not in our names file, and then asks him whether he wants
 REM to create a new Names record for that name.
 REM If he says yes, we call the entname subroutine so that he can
 REM enter a new name.

notfound:
 REQUEST "The contact " + name$ + " was not found","Create it?",1,retcode
 IF retcode% <> 0 THEN GOSUB entname
 RETURN


 REM The listnames subroutine displays a report of all of the records
 REM in our Names file.
 REM We make some of the fields display closer together than the
 REM default to make sure that there is enough room across one line to
 REM fit all of the information in the record.
 REM We sort on the contact's last name and then first name.

listnames:
 SELECT @2&10Firstname.Names,&15Lastname.Names,Phone.Names,Address.Names
 ORDER Lastname.Names,Firstname.Names
 END SELECT
 RETURN


 REM The listallcalls subroutine displays a report of all of the
 REM calls for every name that the user has called.
 REM While in the other report we used the default headings, here
 REM we define our own header of column titles.
 REM The report will display a line for every name that has a call,
 REM and the first call for that name will also appear on that line.
 REM All of the remaining calls for that name will appear on
 REM subsequent lines.
 REM We again sort the report by last and first names.

listallcalls:
 HEADING
 ? @25;"Complete Contact Call Listing" NEWLINE
 ? @2; UL ;"Name                         ";@30;"Date    ";@40;"Time  ";
 ? @48"Note                        "; ATTR OFF
 END HEADING
 SELECT ON "Names"@2&10Firstname.Names,&15Lastname.Names, ON "Calls"
 @30CallDate.Calls,@40CallTime.Calls,@48&30Note.Calls
 WHERE Link.Calls = Link.Names
 ORDER Lastname.Names,Firstname.Names
 END SELECT
 RETURN


 REM The listcall subroutine asks the user for a name and then
 REM displays all of the calls for that name.
 REM If we have no Names record for the name the user enters, we return.
 REM It uses the link field to find those calls.
 REM We again define our own header.
 REM This time we sort the calls by date and then time.

listcall:
 GOSUB getname
 IF retcode% = 0 THEN RETURN
 link% = Link.Names
 HEADING
 ? @10;"Contacts with ";Firstname.Names;Lastname.Names
 END HEADING
 SELECT @2CallDate.Calls,CallTime.Calls,&60Note.Calls
 WHERE Link.Calls = link%
```

Listing continued on p. 86

with END SELECT, which causes Superbase to output the records it retrieved.

The DML offers much more than the basics that we have covered here, but this is enough to give you an inside track. The best way to learn the DML is to experiment, perhaps by enhancing our application. We wish you success as you work with this powerful database-management and application-development tool. ■

Bill Catchings and Mark L. Van Name are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Road, Durham, NC 27703.*

```
 ORDER CallDate.Calls,CallTime.Calls
 END SELECT
 RETURN

 REM The nonames subroutine handles the case where there is no
 REM existing Names file.
 REM When that happens, we tell the user and ask him if he would
 REM like us to create a new one.
 REM If he says to do so, we call initnames to do the work.
 REM Otherwise, we stop the program.

nonames:
 REQUEST "No contact name database found","Create a new one?",1,ans%
 IF ans% = 1 THEN GOSUB initnames ELSE GOSUB exit
 RESUME

 REM The nocalls subroutine performs the same function for the
 REM Calls file.

nocalls:
 REQUEST "No contact call database found","Create a new one?",1,ans%
 IF ans% = 1 THEN GOSUB initcalls ELSE GOSUB exit
 RESUME

 REM The exit subroutine is the central exit point.  We always use it
 REM to stop the program.
 REM We tell the user that we are stopping, close all of the databases,
 REM and then clear the screen.

exit:
 DISPLAY NEWLINE "Closing the databases"
 CLOSE ALL
 CLS
 END □
```

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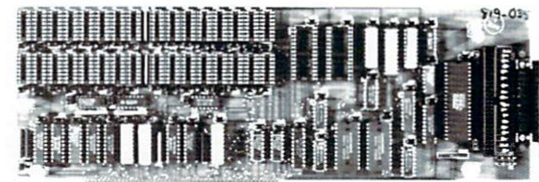
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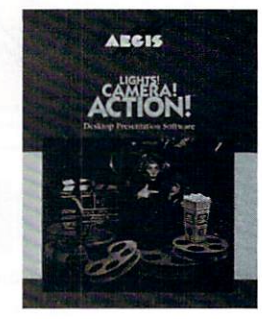
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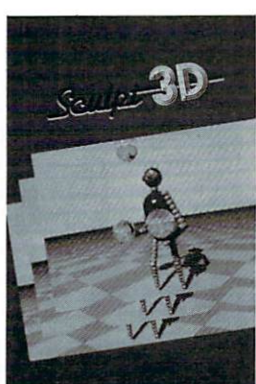
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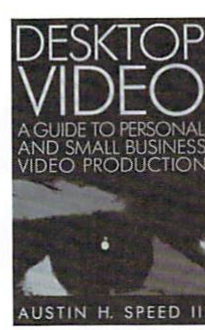
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Airbrush Painting

#1

An occasional series of tips, techniques and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

ONE DIFFERENCE BETWEEN painting with a computer and painting with oils or acrylics is line character. The computer brush draws crisp, consistent lines while the "real" brush and paint create more controllable strokes with a certain random, organic quality. One way to approximate this character in the computer is to use the airbrush as a line tool.

The airbrush tools in most paint packages are similar. Although I will use terms specifically relating to DeluxePaint II, it should be easy to translate DPaint terminology to other paint programs. The airbrush simulates a paint spray. The brush you select (any one will work) is randomly stamped onto the screen within a given area at a fairly high rate of speed. Although large brushes may be used, the real power lies in judicious use of brushes consisting of a single pixel or a group of individual pixels. When "sprayed" on a screen, these brushes produce the familiar soft areas of color you associate with an airbrush.

By setting the right-hand mouse button to the screen background color, you can use that button as an eraser while the left button lays down a foreground color. By setting the two buttons to different values of the same color, it is easy to produce subtle gradations by alternating buttons while working on an area. This is an effective way to highlight and shade a form while you are drawing it. Using related colors, such as a blue and a green, for the two buttons allows complex mixing, giving the illusion of more than two colors in an area (1). (Note: Numbered references in the text refer to corresponding sections of the "Inspector" illustration accompanying this article.) Going into that area again with two new colors can build up an even greater illusion of subtle color changes (2). This method characterizes pointillism, an offshoot of the French Impressionist school of painting, and is an excellent way to get more apparent colors from a 16- or 32-color palette. This mixing of color pixels is also referred to as dithering and is used by digitizing software to achieve realistic color in digitized images. Studying these images is a good way to learn effective airbrush color mixing.

For example, you can use Digi-View to digitize an image with the sharpness control set up between five and 10 (there is also a dithering option in the Color control). Capture the image in 16 or 32 colors and load it into a paint program. Magnify different areas of the image to see how the limited palette can produce the illusion of more colors (3).

Specifically relevent to line character is the airbrush's adjustable spray pattern. Selecting the tool with the right-hand mouse button causes a circle to appear on the screen. You can make it larger or smaller by dragging the mouse. Most people use a large pattern, perceiving the airbrush as a broad painting tool. In fact, it can be a powerful line tool by reducing its size to a very small circle and selecting the single pixel for a brush. This makes a line with a rough character, somewhat like charcoal or dry brush (4). The speed of your stroke effects the density of the line, giving you some physical control over it. Drawing in this mode produces richer textures than the more typical solid-color style of computer art.

"ACCENT" LOGO BY CHRIS SPOLLEN

Using your paint program's brushes in airbrush mode can give your work the texture and character of "real" painting.

Try rough sketching with a broad pattern, then doing finished linework with very narrow patterns, remembering the facility to erase with the right-hand mouse button for cleanup. Try three or four closely related values of brown or gray in sketching. To increase line control while painting, set the mouse speed in Preferences down to two or even four.

Form Out of Chaos

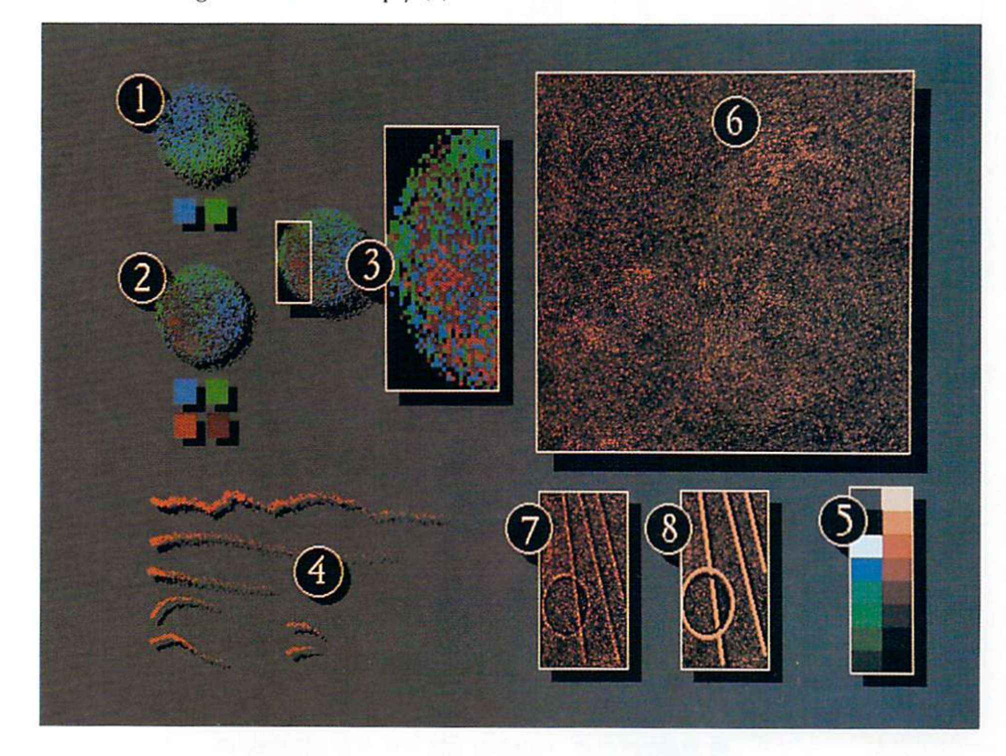
The airbrush mode lends itself to a very interesting kind of painting. Often, the most intriguing images come from sessions where the artist has no plan; instead, one searches the image for direction as it unfolds. The artist must seek suggestion of form as he or she works, pulling it out of the chaos, focusing on it, and refining it. Such an approach requires starting a painting with virtually no preconceptions, then gradually applying increasing discipline to raise the image. The accompanying illustration, "Inspector," is an example of this technique.

I find it effective to work with a range of five to ten values of the same color. In the case of "Inspector," eight values of a sepia tone were used, ranging from very dark to fairly light (5). With these values laid out in the palette in sequential order, I selected them as a Range. This allows features of DeluxePaint II such as Blend and Shade to operate on those and only those colors. I set the darkest shade to be the background color and cleared the screen to that color. Selecting mid-range values, and using Color mode, I lightly sprayed a small area of the screen quickly and evenly (6). This organic texture is more interesting than the sterile look of a mechanical gradient fill. Using smaller and smaller patterns, I began lightening and darkening areas of the screen, spraying with the other sepia colors in my palette. Shapes and features soon began to suggest themselves for emphasis. Switching to the Shade mode and line tool, I used a very small brush to begin drawing lighter and darker lines. The left-hand mouse button darkens the area beneath it, while the right-hand button lightens it. The Shade mode makes subtle lines (7), where a solid color drawn across the image stands out crisply (8).

As the picture took shape, I used the background color to cut away large areas, focusing on the face. Final details in the eyes, teeth, and ornaments were drawn with the Blend mode to create contrasting smooth areas.

"Inspector" was done in the hi-res 640 × 400 mode. Painting in this airbrush style, interlace flicker is never noticeable. Setting the menu colors (zero and one) to black and medium gray reduces their relative contrast and virtually eliminates flicker in the menu, as well. ■

Joel Hagen's credits include work in art, astronomy, software development, and science fiction. Write to him at 10512 Sawyer, Oakdale, CA 95361.



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☛ Products had not been released as of 10/15/88.

▼ Products have been reduced in price.

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Exploring AmigaDOS 1.3*

By Mark L. Van Name and Bill Catchings

Team info.phile concludes its five-part "mini-series" on new and improved commands and features in AmigaDOS 1.3 by exploring RAD:—1.3's innovative recoverable-RAM disk. In this final episode you may not learn who really shot J.R. or whether Krystle is actually Alexis' half sister by the last czar of the Romanov dynasty, but you will discover the secrets of "The RAM Disk That Wouldn't Die."

**Editor's Note: To get the information on version 1.3 to you as quickly as possible, the authors have had to use a "gamma" version of AmigaDOS 1.3. A gamma version is one that Commodore circulates to developers and a few other groups so that those groups can see what's coming and help shake out any bugs. It is supposed to be the last unofficial release before the software hits your dealer's shelves, although Commodore reportedly has released an "omega" version. Most likely, the final version will have the same new CLI commands as this gamma version,* but *Commodore still could make some changes before it releases the final version. To be safe, when you buy a copy of version 1.3, plan to spend a few minutes verifying that everything works as it is described here.*

IN OUR PAST four columns we discussed most of the new features that AmigaDOS 1.3 offers to CLI users. This column finishes our coverage of 1.3 with a look at a particularly useful new addition, a new RAM disk.

A New RAM Disk

Yes, 1.3 includes a driver for a new RAM disk, RAD:. Because AmigaDOS already offered the RAM: RAM disk, this new facility obviously raises several key questions:

First, what was wrong with the old one?

Nothing—well, that's not quite true, as we will discuss in a few paragraphs, but the fact is that RAM: worked reliably for most of us. Fortunately, it's not gone. You can still use RAM: just as you did before. You can even have both RAM disks available at once, if you have enough memory to spare.

So, why bother creating a new one?

The answer comes from the Guru we all hate to see. When your Amiga crashes and the Guru visits, you lose everything in memory at that time—including everything in RAM:. This is RAM:'s big failing; even if you can reboot your system without turning it off, the contents of RAM: are history. When you reboot your system you have to reload everything you put there. If you were unlucky enough to be temporarily storing a program's output there, you will have to run the program all over again. You also lose everything in RAM: any time you manually reboot.

RAD: solves this problem. Unlike RAM:, it is recoverable—meaning that its contents survive manual reboots, even if they follow a Guru visit. Several Amiga software and hardware vendors, notably ASDG, have offered recoverable-RAM disks for some time. Now Commodore has followed suit by including one as part of its standard AmigaDOS 1.3 software.

There are two limits on the ability of ►

RAD: to recover data after a reboot. First, nothing in main memory survives when you turn off your Amiga's power, including the contents of RAD:. If your Amiga crashes badly enough to force you to turn it off so that you can reboot it, RAD: will be lost as surely as RAM:.

Also, the preliminary Commodore documentation warns that it is possible for a crash to trash the contents of RAD:. Theoretically, this can happen even after a crash that lets you manually reboot your system. This problem, however, is likely to be very rare. We could not get it to happen; we induced crashes and manually rebooted several times, but RAD: survived intact every time. Should you be unlucky enough to encounter one of these rare crashes, don't give up. You can run DISKDOCTOR on RAD:, just as you can on any disk, and it might be able to recover your files.

The fact that you can run DISKDOCTOR on RAD: is a clue to just how much like a real disk Commodore treats it. RAD: differs greatly from RAM:, both in how you set it up and how AmigaDOS manages it.

Getting RAD: Ready to Roll

You have to go through a little more work to set up RAD: than RAM:.

In part this is because RAM: is so extremely easy to establish. Copy a file to RAM:, and it's ready to go. It is always exactly as big as it needs to be to hold its current contents, and no bigger. This means that RAM: never consumes more memory than it has to use to hold its current contents. To see its flexible size in action, copy a file to RAM:, run INFO, copy another file to it, and then run INFO again. You will see that the size of each of your real disks is fixed, while their percentage in use varies with what you put on them. Check RAM: and you will see that its size varies, getting bigger after each file you copy to it, but that it is always 100% full.

RAD: behaves very differently. Basically, it acts like any other disk. You give it a size when you set it up, and it stays that size. No matter how much free memory you have, you cannot put a file into RAD: unless RAD: is big enough to hold it. Also, no matter how little you have in RAD:, it always consumes its size in memory. This stable size makes it easier for AmigaDOS to make RAD: recoverable. The cost to you is that you must make sure that you can spare enough memory at all times to hold the full size of RAD:.

To set up RAD: follow the same procedure you would use to set up any new disk that you attached to your Amiga.

First, put an entry for it in the file DEVS/MOUNTLIST on your Workbench disk. MOUNTLIST entries can be daunting, so this requirement is not good news for most of us. Fortunately, AmigaDOS 1.3 comes with the following sample RAD: entry in MOUNTLIST:

```
RAD:Device = ramdrive.device
Unit = 0
Flags = 0
Surfaces = 2
BlocksPerTrack = 11
Reserved = 2
Interleave = 0
LowCyl = 0 ; HighCyl = 21
Buffers = 5
BufMemType = 1
#
```

Because we will discuss MOUNTLIST entries in detail in our next column, let's skip the explanation of most of these lines for now. You need to understand only a few to control RAD:.

The first line gives the name of the device and the name of the piece of software—the handler—that manages it. Although Commodore gave it the name RAD:, you could pick your own device name if you wish. We recommend you stick with the given name because standard names make system discussions easier. You must not, however, change the device handler, RAMDRIVE.DEVICE, which is a file in your Workbench disk's DEVS directory; you must leave it there if you ever plan to use RAD:.

The other relevant line is:

LowCyl = 0 ; HighCyl = 21

The HighCyl number in this line ultimately controls the size of RAD:. You can calculate that size with the following formula:

$$\text{size} = (\text{block size}) \times (\text{BlocksPerTrack}) \times (\text{Surfaces}) \times (\text{HighCyl} - \text{LowCyl} + 1)$$

This formula is basically the one that you would use to figure the size, or capacity, of any disk. (If you want to know exactly how we got this formula, either consult a book on disk drives or send us letters demanding that we tell you in a future column.)

This formula may at first appear to contain a lot of variables, but it really doesn't. AmigaDOS uses 512-byte blocks consistently, so the block size is a constant. The other variables all come from the MOUNTLIST entry lines of the same names. You should always leave BlocksPerTrack, Surfaces, and LowCyl as they appear in that file, so most of the rest of the equation is also simpler than it looks.

Thus, when we plug the numbers from the standard RAD: MOUNTLIST entry above into this formula, it becomes:

$$\text{size} = (512) \times (11) \times (2) \times (21 - 0 + 1) = 512 \times 11 \times 2 \times 22$$

or, 247,808 bytes, which is 242K. (Think of 512 as half of 1K, and the formula is even simpler: $0.5 \times 11 \times 2 \times 22$, or 242.)

Because all of the other numbers in the formula are fixed, HighCyl is the key to your control of the size of RAD:. Change HighCyl and you change RAD:'s size. For example, if you cannot afford the fixed overhead of 242K of RAM tied up for RAD:, try a smaller HighCyl. Set HighCyl to 10 and you get:

$$\text{size (in KB)} = 0.5 \times 11 \times 2 \times 10$$

or, 110K. Experiment with different HighCyl numbers until this formula gives you a RAD: size that makes sense for your Amiga.

Final Preparations

Once you have chosen the size and updated the RAD: MOUNTLIST entry appropriately, you 're almost ready to go. You still must prepare it for AmigaDOS just as you would have to prepare any other disk.

First, mount it with the command:

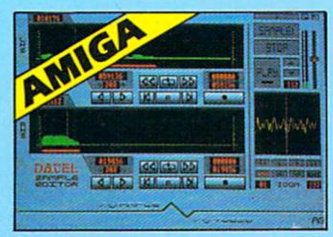
MOUNT RAD:

This command makes AmigaDOS aware of the existence of RAD: and ready to use it. Next, format RAD: so that it can hold AmigaDOS files. To do so, use the standard FORMAT command, as follows:

FORMAT DRIVE RAD: NAME "Recoverable RAM Disk" NOICONS

Unlike a floppy disk FORMAT, this ►

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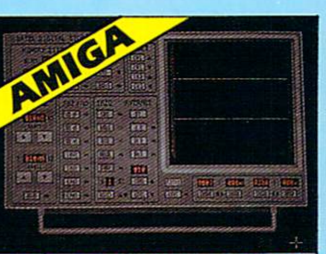
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FORMAT is fast; you will only have to wait three to five seconds to format the standard 242K RAD:. If you pick a name other than RAD: for your recoverable RAM disk MOUNTLIST entry, you must use that name in place of RAD: in the above two commands. Also, the NAME in the FORMAT command can be anything you want, and the NOICONS keyword is, as in any other FORMAT command, optional.

By the way, it might seem like a good idea to put these commands in your S/STARTUP-SEQUENCE file, but don't do it. AmigaDOS executes that file every time you boot or reboot your Amiga, and FORMAT destroys the contents of any disk it touches, so you would be forcing AmigaDOS to wipe out RAD: every time you reboot. That would defeat the whole point of using a recoverable RAM disk. We suggest instead that you put these commands in a batch file that you can execute anytime you power up your Amiga. This approach stops the system from ever automatically erasing RAD: for you.

Once you have executed these two commands, you can treat RAD: like any other disk, except that it will run as fast as RAM:. It will also give you the comfort of knowing that a visit from the Guru will not trash its contents.

If you run INFO now, it will show RAD: with the size you picked. This size will not change whether you leave RAD: empty or fill it with files. INFO will also show RAD: as having two blocks used, even if you have not yet copied anything into it. Don't worry—those two blocks should be in use because AmigaDOS uses them to contain some of its standard control information.

In addition to treating RAD: as a very fast disk, you can also use it like a disk in other ways. With the AmigaDOS 1.3 KickStart software you can actually copy your Workbench disk to RAD: and reboot from it as if it were a Workbench. If you have the memory to spare, this can greatly speed rebooting.

You can also make RAD: a bit faster by formatting it to run under the new AmigaDOS 1.3 Fast File System (FFS). To do so, add the following line to the RAD: MOUNTLIST entry:

```
DosType = FFS
```

If you choose to run RAD: under FFS, however, you cannot reboot from it. To make your Amiga behave correctly, when you add the above line to the RAD: MOUNTLIST entry you must also add either:

```
BootPri = -127
```

or

```
Flags = 2
```

Because RAD: is already so much faster than a floppy or even a hard disk, we prefer to use the old file system with it and be able to reboot from it, rather than going with the slightly faster FFS.

Too Recoverable?

One problem remains with RAD:—if you need to get back the memory it is using, what do you do? Commodore initially found that RAD: was so hard to kill that the only way to get rid of it was to turn off your Amiga, a less than ideal solution. Commodore offered an alternative answer to this problem with a late addition to AmigaDOS 1.3: the REMRAD command.

REMRAD deletes all of the files in RAD: and gives you back all but about 512 bytes of the memory that RAD: consumed. REMRAD takes no parameters; you just enter:

```
REMRAD
```

and RAD: is gone. Actually, if you run INFO it will show the line:

```
RAD:Not a DOS disk
```

RAD: will vanish completely the next time you reboot your system.

The recoverable-RAM disk RAD: and the many AmigaDOS improvements that we discussed in our previous four columns make AmigaDOS 1.3 a "must have" for frequent CLI users. We plan to upgrade to the official release as soon as it is available, and we encourage you to do likewise.

Next time we will examine the Mountlist file and how you can use it to control everything from the RAD: RAM disk to a hard disk for your Amiga. Until then, we wish you fun and good luck as you experiment with AmigaDOS 1.3! ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Rd., Durham, NC 27703.*

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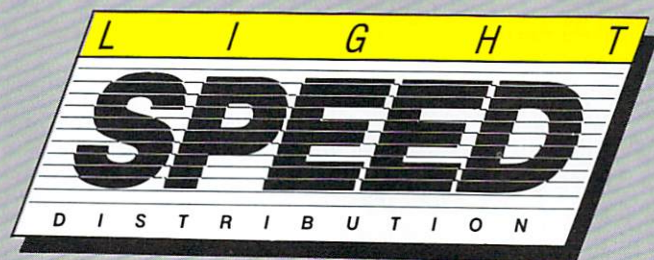
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1988 *AmigaWorld* Readers' Choice Awards

DEWEY WINS! No, wait, that's the wrong headline. But the results *are* in for the 1988 *AmigaWorld* "Readers' Choice Awards." Voting was heavy and the campaigns spirited (George and The Duke would be envious). While some inevitable ballot-box stuffing was attempted (it's rumored that nearly half a million entry forms are still floating around somewhere in Cook County, Illinois), we feel that the results are a fair and honest representation of our readers' opinions on the best and the brightest among Amiga products.

We entered the ratings from each ballot into a staff-written Amiga program (ineligible for an award so it would not skew the results in its favor) that calculated each product's ratings and the number of votes it received. Products were ranked by their Overall rating from 1 (the lowest) to 10. Some products that received very high ratings from loyal users were not eligible for an award because the number of ballots they received was far too small to represent a meaningful sample; we apologize for such omissions. The top-rated product in each category received the prestigious Readers' Choice Award (with selected bon mots from our readers); the First and Second Runners-Up will receive lovely consolation prizes.

The seven categories (Creativity, Games, Productivity, Hardware, Utilities, Home, Programming) are broader than strict program types (database, graphics, educational, and so forth). Creativity includes graphics, video, music, and desktop publishing—everything you need to bring your imagination to life. Games is packed with fun diversions. Hardware includes memory expanders, hard drives, digitizers, genlocks—anything you can attach onto or plug into your Amiga. Home covers educational, home inventory, and personal finance programs. Productivity outlines software to make your business more efficient—spreadsheets, databases, word processors, accounting packages, and telecommunications programs. Programming includes languages and utilities that let you write your own applications. Utilities is a catch-all category for useful programs that accomplish a variety of tasks.

Without further ado, the winners are:

CREATIVITY



1. DeluxePaint II
Electronic Arts
$129.95

Ease of use	9.6
Flexibility	9.7
Professional features	9.4
Overall	9.56

Considered by artists to be the standard against which all other paint packages are measured, DeluxePaint II is fast to learn and intuitive to use. The flexible custom brush, stencil, and background tools were the forerunners of similiar features in other packages. You can create images up to 1008 x 1008 pixels and give them depth with the Perspective tool. If a painting technique or effect exists, it is probably included in DeluxePaint II.

"If you want to do a project quickly and efficiently, use DeluxePaint II."

2. Digi-Paint
NewTek
$59.95

Ease of use	9.0
Flexibility	9.3
Professional features	8.0
Overall	8.78

A Hold-and-Modify (HAM) paint program, Digi-Paint lets you perform special effects such as rubthrough for a watercolor look, flip a screen for a mirror image, and create the negative of a screen.

3. Photon Paint
MicroIllusions
$99.95

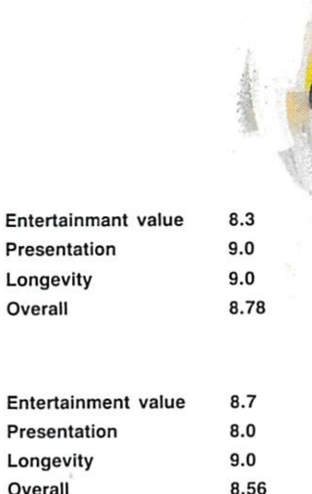
Ease of use	8.0
Flexibility	8.5
Professional features	8.5
Overall	8.33

Supporting PAL, Overscan, and NTSC standards, Photon Paint is a HAM paint program that lets you tilt, rotate, resize your brush, plus map it to 3-D objects.

ILLUSTRATED BY RICHARD STEADHAM

GAMES





1. Bard's Tale I
Electronic Arts
$49.95

Entertainment value	9.0
Presentation	9.5
Longevity	8.8
Overall	9.08

In this fantasy role-playing adventure, you assemble an exploring party of six characters and begin your quest through the city of Skara Brae to destroy the evil wizard Mangar the Dark. As you travel around the city's three-dimensional streets, buildings, and dungeons, you will have to fight off assorted monsters and villains who try to block your progress. Your characters gain experience that you can exchange for higher levels of fighting ability, magic, dexterity, and so on. Actions are controlled with the mouse or single-key commands.

"When you open the package, make sure you've got plenty of free time. This one is addictive."

2. Shanghai
Mediagenic
$39.95

Entertainmant value	8.3
Presentation	9.0
Longevity	9.0
Overall	8.78

Shanghai arranges mah-jongg tiles in an intricate pattern for you to remove in matching pairs. Remove all the tiles and you win.

3. Earl Weaver Baseball
Electronic Arts
$49.95

Entertainment value	8.7
Presentation	8.0
Longevity	9.0
Overall	8.56

A statistics-based simulation, Earl Weaver Baseball lets you call the plays from the dugouts of big-league ballparks. Past and present major leaguers fill out the rosters.

PRODUCTIVITY

1. Online!
Micro-Systems Software
$69.95

Ease of use	8.4
Flexibility	8.4
Advanced features	8.4
Overall	8.4

In addition to telecommunications basics such as auto-answer, auto-redial, capture to disk, and a phone directory, Online! offers 20 macro keys, an editable buffer, and a chat mode. The program's script language and unattended calling feature let you automate your sessions. Pass a file through the translation tables, and you can change one or more ASCII codes to any other ASCII code—a handy feature for interfacing with non-Amiga systems. Online! supports 300, 600, 1200, 2400, 4800, 9600, and 19,200 baud rates, plus even, odd, none, mark, and space parities.

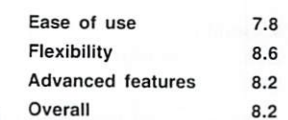
"I bought it two years ago, and it's still the best on the market."

2. Microfiche Filer
Software Visions
$99

Ease of use	9.1
Flexibility	8.1
Advanced features	7.5
Overall	8.25

Capable of storing text and graphics, Microfiche Filer is a database that takes a different approach. You scan your sorted files in the same manner as a microfiche reader. The update, Microfiche Filer Plus, will be able to store sounds and will support ARexx.

3. MaxiPlan Plus
Oxxi
$199



Ease of use	7.8
Flexibility	8.6
Advanced features	8.2
Overall	8.2

MaxiPlan Plus is a feature-laden spreadsheet that combines macros, Lotus 1-2-3 compatibility, IFF graphs, a speech option, and over 70 functions.



HARDWARE

1. flickerFixer
MicroWay
$595

Ease of installation	9.0
Ease of use	9.7
Technical support	8.0
Overall	9.11

Besides eliminating interlace flicker from hi-res screens, flickerFixer improves the quality of all Amiga displays by filling in between the scan lines to produce solid characters. The board fits into the Amiga 2000's video slot.

"Installing flickerFixer made the most noticeable improvement to my Amiga 2000 since I purchased the machine."

2. Digi-View
NewTek
$199.95

Ease of installation	8.3
Ease of use	9.1
Technical support	8.5
Overall	8.63

The Amiga's first video digitizer, Digi-View now supports overscan and Extra_HalfBrite mode. A copy stand and video camera are available at an extra cost.

3. TimeSaver
C Ltd
$79.95

Ease of installation	9.2
Ease of use	8.8
Technical support	7.4
Overall	8.47

Besides a clock/calendar with battery backup, TimeSaver offers a command line editor for the CLI, and a command line history of the last 1000 CLI commands you issued. You can also program keyboard macros.

UTILITIES

1. Marauder II
Discovery Software
$39.95

Ease of use	9.4
Documentation	9.2
Performance	8.7
Overall	9.11

Intended to be used for back-up purposes only, Marauder II lets you make up to four copies of a disk simultaneously. The Decoder utility strips copy protection from programs so you can install them on a hard disk. DiskErr checks disks for unreadable data, while DiskWipe erases disks. Marauder II will also check the speed of your disk drives.

"Marauder II is great virus protection. Back up those disks with custom boot blocks and you're safe."

2. Facc II
ASDG
$34.95

Ease of use	5.0
Documentation	9.5
Performance	9.5
Overall	8.0

A Floppy ACCelerator, Facc II speeds up your disk access using a cache system. The low-memory option keeps you from running out of memory.

3. Grabbit
Discovery Software
$29.95

Ease of use	8.0
Documentation	7.0
Performance	8.0
Overall	7.67

When loaded into memory with an application program, Grabbit lets you save screens from the application to disk or print out a hard copy.

HOME

1. PHASAR
Antic Software
$99.95

Ease of use	9.8
Documentation	9.0
Flexibility	9.5
Overall	9.42

PHASAR is a financial management program that lets you keep your account books on disk. You can combine income and expense accounts to analyze standings in discrete areas or check all your transactions for an overall standing. The program allows for one-time income or expenses (gifts or car down payments) that normally would skew your budgeting and cash flow. You can also perform loan comparisons, savings account analyses, and tax projections.

"Finally, my finances make sense. I can even stay within budget."

2. Mavis Beacon Teaches Typing
Electronic Arts
$44.95

Ease of use	8.5
Documentation	7.0
Flexibility	7.5
Overall	7.67

Rather than drills, Mavis teaches typing skills with famous quotes, stories, jokes, riddles, and arcade games.

3. Galileo II
Infinity Software
$69.95

Ease of use	7.5
Documentation	7.0
Flexibility	6.5
Overall	7.0

Galileo II lets you search the heavens, so you can learn about stars and planets without ever going outside.

PROGRAMMING

1. Aztec C
Manx Software Systems
$199

Documentation	8.8
Flexibility	8.5
Advanced features	9.8
Overall	9.03

While it was not the first C-language development system for the Amiga, Aztec C quickly developed a reputation as the best. In head-to-head tests against Lattice C, Manx consistantly took less time to produce shorter object code. Aztec C does not produce object code directly from C source code; rather, it first translates C source code into assembly source code, which the system then assembles. This gives programmers who are fluent in assembly language the opportunity to optimize their code.

"The precompiled include files really speed up development time."

2. ARexx
William S. Hawes
$49.95

Documentation	7.4
Flexibility	9.5
Advanced features	9.1
Overall	8.67

A macro-language that ties disparate Amiga applications together, ARexx is the hottest new item in Amiga programming. ARexx makes the most of the Amiga's multitasking capabilities.

3. C Compiler 4.1
Lattice
$225

Documentation	7.0
Flexibility	7.3
Advanced features	8.7
Overall	7.67

The standard Amiga C compiler, Lattice C has, in its last few releases, narrowed the performance gap with Aztec C. The introduction of C++, a precompiler, may put this one on top again.



Readers' Choice Company List

Antic Software
544 Second St.
San Francisco, CA 94107
415/957-0886

ASDG
280 River Rd., Suite 54A
Piscataway, NJ 08854
201/563-0529

C Ltd
723 East Skinner
Witchita, KS 67211
316/267-3807

Electronic Arts
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San Mateo, CA 94404
415/571-7171

Infinity Software
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Emeryville, CA 94608
415/420-1551

Lattice
2500 S. Highland Ave.
Suite 300
Lombard, IL 60148
312/916-1600
800/533-3577

Manx Software Systems
One Industrial Way West
Eatontown, NJ 07724
800/221-0440

Mediagenic
388 Bohannon Dr.
Menlo Park, CA 94025
415/329-0800

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
818/360-3715
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West Palm Beach, FL 33414
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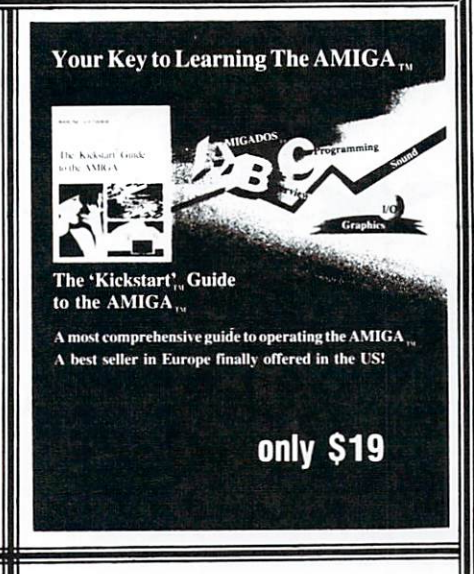


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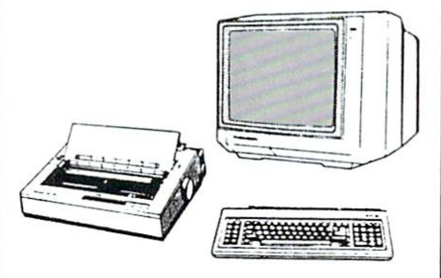
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from p. 16

Posters

PhotoLab's Paint program includes an option for printing your work, this feature is difficult to understand because PhotoLab also includes the full-featured Posters print program. Having played with Posters, I think I've already been spoiled: I don't want to use any other print program. Posters can print out any picture file at any size, from one inch by one inch, to ten feet on a side.

Although I have not yet tried printing anything as large as ten feet, I am very impressed with the quality of the printouts I made using a Canon PJ_1080A printer. The interface for setting up the printouts is simplicity itself. The size of your printer paper will already be set by Preferences (if it is not—or if you want to change it—you can do so with a few clicks in the appropriate sizing gadgets). The size of the finished printout is represented on a grid by a gray box; you drag the box out across the grid to enlarge it, or back to reduce it. Each square on the grid represents one sheet of printer paper. When you have the approximate size you want, you then fine tune with a couple of up and down gadgets that will increment or decrement it in inches.

A menu item allowing you to turn off the aspect ratio enables you to size your picture to whatever dimensions you like. Without this you would be constrained by the program to the proportions of the original picture. Be warned, however, that turning off the aspect ratio can cause distortion in the finished print as you get farther away from the correct proportions.

All told, I really like Deluxe PhotoLab. Although it does not offer any major breakthroughs that I know of—there are other paint programs, image processors, and print packages with similar capabilities—Deluxe PhotoLab offers them all in one place and, more importantly, in a format that is easy to learn and to use.

Deluxe PhotoLab
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
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One megabyte required

EXP-1000

Fill up the inside to make more room.

By C. W. Mann

EASY TO INSTALL, the EXP-1000 from Progressive Peripherals & Software is a dedicated one-megabyte internal memory-expansion board for the Amiga 500.

In a Snap

The EXP-1000 kit contains a well-written installation manual. The illustrated text guides you through the necessary steps of disassembling your A500, installing the board, and reassembling the machine. The only other tools you will need are long-nose pliers, a chip puller (available from electronics stores), and a screwdriver. You can use a flat-blade screwdriver, but a Torx (L-formed) screwdriver (available from Sears) makes disassembling the A500 case a breeze.

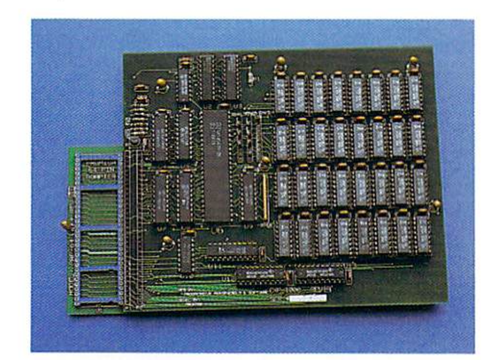
The EXP-1000 mounts in the A500's 68000 CPU socket. With the chip pullers, remove the 68000 chip from its socket on the main board. Plug the EXP-1000 into the CPU socket, then plug the CPU back into the built-in socket on the EXP-1000. Be careful, the 68000 pins are very soft and delicate. I completed the project in 30 minutes, but had to bend two upright capacitors to the limits of their leads to properly seat the expansion board.

With Commodore's A501 internal clock/calendar board in place, the EXP-1000 yielded nearly two megs of memory, double the usual amount. The operating system recognized the extra RAM without hesitation. I tested several programs on the expanded machine, and they all ran without a hitch.

Stable Ground

If you plan on moving your Amiga any distance, you'll want to remove the EXP board. About eight inches long, the EXP-1000 connects to the 68000 socket on one end, while the other end is supported by a rubber foot. The board's short, thin interface pins are all that hold it in place. The consequences of the EXP-1000 breaking loose during ship-

ping could be disastrous. A firmer anchoring system would be a welcome improvement.



EXP-1000 fits comfortably in the A500.

The EXP-1000 is no small investment. Unpopulated (without memory chips), the board costs $299.95. At this writing, the 32 memory chips needed for a megabyte cost from $11 to $13 each, bringing the total price into the $651.95 to $715.95 range. Progressive sells the populated board for $549.95. Watch the chip market carefully before you decide how to purchase your memory. No matter which configuration you choose, the EXP-1000 is a top-notch product.

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X-Specs 3D

The future of computer displays?

By Louis R. Wallace

X-SPECS 3D look as if they would be more at home on a Star Trek set than in your computer room. Using stereo-vision techniques, these exotic-looking goggle-like glasses let you see Amiga images in three dimensions.

Stereo vision combines two different images into one picture. A child's ViewMaster toy and old-fashioned stereopticons both use the stereo-vision technique. Each employ slides with two different versions of the same picture; when you look through the viewing lenses, your brain combines the two pictures into one realistic 3-D image.

Because separate Amiga monitors for each eye would be bulky and expensive, X-Specs divides your eyes instead of multiplying the screens. The glasses plug into the joystick port and use a liquid crystal display (LCD) to allow only one eye at a time to receive information. When the electric current supplied to the crystal is varied, the LCD crystal changes from clear to black. X-Specs' companion software sends a current to black out one LCD, and shows the first version of an image to the eye with the clear LCD. Then the software sends a new current to the crystals so that the opposite eye can see, and shows it a slightly different image. The changes happen so quickly—60 times a second—that your eyes are unaware of the process and are fooled into combining the two images into one 3-D picture.

The process works well on X-Specs sample 3-D scenes, producing pictures that seem to have real depth. Some parts of the pictures appear to be deep inside the screen, while others look as if they are protruding eight inches out of the screen.

The X-Specs disk also includes a molecular viewer and a set of 3-D molecules. While a viewer program is simple, the stereo-molecular models are visually impressive as they rotate in and out of the screen.

Mashed Potatoes

The wackiest piece of software is SpaceSpuds, a 3-D arcade shoot-'em-up. You must shoot all the potatoes that are floating in space, without smashing into them as you move. While spuds will explode with one shot, flying cakes and potato chips blow up only after several zaps. Watch out for the sun, which shoots green balls at your ship; get hit and you are snuffed out. While not an award-winning game in itself, the combination of the action and SpaceSpuds' intense 3-D imagery is sufficiently novel to hold your interest for a while.

The documentation (one double-sided page) very briefly discusses the X-Spec glasses and software. Information about creating your own 3-D stereo images is sketchy at best. While it describes a method of using the supplied picture ►

viewer and any two IFF pictures to display a stereo image, the documentation offers no programming information.

As a gadget lover, I was fascinated by X-Specs, until I grew tired of looking at the few supplied pictures and demos. The documentation does stress that other software will support the glasses, although little is available currently. I hope that future software releases will have information for programmers. Until then, while X-Specs 3-D is a very interesting gadget, it is too expensive for what little you can do with it.

X-Specs 3-D
Haitex Resources Inc.
208 Carrollton Park, Suite 1207
Carrollton, TX 75006
214/241-8030
$124.95
512K required.

WordPerfect Library

A five-piece set of desktop-utility programs with a designer label to top off your WordPerfect collection.

By Denny Atkin

LIKE CLOTHING DESIGNERS Ralph Lauren and Calvin Klein, WordPerfect is a trend setter when it comes to word processing. And like its counterparts in fashion, WordPerfect is beginning to spin off a whole line of accessories to complement the basic "threads." Think of WordPerfect Library—a set of desktop utilities—as the perfect ensemble of shirt, tie, cuff links, and cologne to go with the $500 sport coat.

WordPerfect Corporation bills WordPerfect Library as the key to getting organized. It consists of five programs: Calculator, Calendar, File Manager, Notebook, and Program Editor (P-Edit).

The question is: Do you really need all the extras? The Amiga system software already includes an editor, calculator, and notepad. Powerful editors, calendar programs, calculators, and directory utilities are available through shareware and the public domain. Can WordPerfect's advertising claim that "at $129, you can't find a better value" be justified?

If you have used WordPerfect on the Amiga, learning to use the Library programs should be easy. While Library takes full advantage of the Intuition user interface, commands are also available through use of the function keys. Where possible, the same key combinations are used for functions that overlap between programs. Complete function lists are available through the Help key in the P-Edit, Notebook, and Calendar programs.

The programs are well integrated. While the clipboard is not used to cut and paste between applications, the programs douse compatible file formats. Calendar, Notebook, and ProgramEditor files can all be read by WordPerfect. Additionally, the package includes the Print program from the WordPerfect word processor, an independent task that allows spooling of multiple files for background printing.

Notebook

Although billed as a "mini-database," Notebook is a surprisingly capable list manager. Geared primarily toward the creation and organization of WordPerfect merge files, Notebook handles only text fields. While it has no math or sophisticated reporting capabilites, the program is ideal for keeping text-oriented databases, such as mailing lists, phone lists, or recipe files.

You can view a Notebook file in two ways. The initial display is a columnar listing that shows selected fields from each record, with one line devoted to each field. From this display you can search for specific records, choose records for printing and merging with WordPerfect files, and sort and delete records.

The record display appears when you edit or add a new record, presenting individual records in a file-card format. This window can contain labels, instructions, lines and boxes, and of course the data fields. All changes to individual records take place in this window.

With Notebook's powerful search function, you can conduct a search on all records in a file or marked records only, and you can search all fields or individual fields in each record.

For modem users, Notebook also includes a sophisticated phone-dialing function. Simply mark a field as a phone

field when setting up the database. You can specify up to 26 special dialing strings, such as area codes, long distance services, or dial-out codes within the setup file. These can be applied to specific records or to the entire file, allowing you to dial a special access code only if the phone number is long distance. Calling is then as simple as clicking on a record and selecting Dial.

Like WordPerfect, Notebook has powerful macro capabilities for automating repetitive tasks. Macros can contain keystrokes and menu selections, and can call other macros.

Notebook saves its files directly in WordPerfect merge format, so records can be merged easily with WordPerfect documents. You can mark specific records for saving in a separate merge file. If you use WordPerfect for mail-merge operations, Notebook is a must.

Program Editor

Designed for editing text and program files, P-Edit has sophisticated block commands and macro capabilities similar to those available in WordPerfect. P-Edit's features are geared toward creating structured documents, such as program source code. Along with such standard block functions as cut, copy, and paste, P-Edit features some useful new commands, including CLONE, a combination of copy and paste, and MOVE, which combines cut and paste into a single function. These functions allow a programmer to easily duplicate or move blocks of code within a program.

Text blocks can be defined using either mouse or keyboard commands. A unique feature of P-Edit is the ability to highlight several pieces of text as blocks simultaneously. This is handy for copying multiple sections of one file to another without having to block and copy each part separately. Like WordPerfect, P-Edit allows you to have up to 32 files open concurrently.

There are many other programmer-oriented features, including hex edit, which allows editing of non-ASCII characters such as control codes; auto-indent for use with structured languages such as C and Modula-2; and case convert, which allows you to convert blocks of text to all uppercase or lowercase letters.

One major weakness in P-Edit, however, is the lack of a word-wrap option. If you edit text files for uploading to bulletin board services, word-wrap is a very useful feature.

File Manager

File Manager allows users to manipulate files without using the CLI. Similar in concept to many public-domain directory-utility programs, File Manager has some unique features that make it stand out for WordPerfect users.

The program displays files sorted by name, date, or size. Device names can be displayed either by physical name (df0:, RAM:) or logical name (Workbench1.3:, c:). You can move through the file display using the scroll bar or cursor keys, or by typing the first few letters of the file you are looking for. Typing PRE, for instance, would find Preferences).

Deleting, copying, or moving files and directories is as simple as highlighting the files in question, clicking on the desired operation, and selecting a destination directory. Unlike many directory ►

utilities, File Manager will automatically create the destination directory you specify if it does not already exist.

File Manager allows you to search for a file or group of files by file name or by using a wildcard pattern. You can also mark files created between specific dates, or containing a certain text string.

While File Manager has some unique features, it lacks many of the extras available in other directory utilities. The program's primary advantage is its capability to print both ASCII text files and formatted WordPerfect files. There is no way to run a file from within the program, and you can copy or delete only one directory at a time. Considering the sophistication of the other programs in the package, I would have expected File Manager to be more powerful than the public-domain and shareware directory utilities.

CALENDAR

Calendar is a time-organizer program that allows you to view a monthly calendar for any date, and to add memos, appointments, and to-do lists for specific dates. It also includes a separate alarm program to notify you of impending appointments.

Calendar opens four windows on your Workbench screen: Calendar, Appointments, Memo, and To-Do. The first window displays a graphics-oriented calendar for the currently selected month. The appointment window not only lets you set alarms notifying you of upcoming meetings, but also alerts you if appointments overlap.

Other Calendar options allow you to carry To-Do items over to the next day if they are not marked as completed, and to remove old information and append it to a separate archive file. A Day Count feature will calculate not only all days between two dates, but any combination of days of the week between two dates.

Alarm is a separate 7K program that will pop up and display appointment text a set amount of time before the appointment. If you wish, the program can also speak the appointment text and alert you with a buzz or any IFF-sampled sound. Alarm also has the option to display the current time in a small title-bar window.

CALCULATOR

The final Library program, Calculator, emulates a scientific, programmer, or financial calculator. Calculator will operate in either algebraic or Reverse Polish Notation (RPN).

The program displays a large window that looks much like a hand-held calculator. The program accepts input either through the keyboard or by clicking on the graphics-oriented "keys."

Calculator has all of the standard operators associated with each calculator type. The most exceptional feature of the program is a 100-register memory that can be saved when you exit the program. The Financial calculator also provides registers for commonly used variables, such as interest rate, profit margin, and present value.

Unfortunately, Calculator is the only program in Library that does not have printing capability. When using the program to calculate a long list of numbers, it would be nice to have a "rolling-tape" capability so you could check your input.

Like WordPerfect, Library comes with a very complete manual, function-key overlays for the various programs, and transparent keytops for the A1000 keypad. Bound in an attractive three-ring binder with matching sleeve, the documentation is over 600 pages in length. There are learning and reference sections for each program, and comprehensive installation instructions. The Learning sections provide tutorials and practical examples, while the Reference sections contain alphabetized listings and descriptions of each program command.

If you have a problem not covered in the documentation, WordPerfect maintains a toll-free telephone support line. If you report a bug that has been fixed, you are entitled to a free upgrade to the latest-release version. Overall, WordPerfect Corporation provides excellent support.

How should we answer the question "Can you find a better value at $129?" posed at the beginning of the review? Library's strongest components are Note- ►

book and P-Edit and they deliver on most everything they promise. Much of the functionality of the other programs, however, can be found in public-domain and shareware programs. With many calculators and directory utilities available free from public-domain sources, this part of the package does not represent great value.

Yet, despite a few weak areas, I would still recommend Library to anyone who needs a good program editor or does a lot of mail-merge work in WordPerfect. While the other programs in the package are not outstanding, they are well thought out and easy to use, and WordPerfect Corporation has expressed plans to continue to develop and upgrade the programs in the future.

While $129 may not seem an exceptional value at first, WordPerfect products generally sell at a healthy discount, and the street price of the program should be under $100. Considering that works out to less than $20 a program, I would rate Library a good value.

WordPerfect Library
WordPerfect Corp.
288 West Center St.
Orem, UT 84057
801/225-5000
$129
512K required.

Ultra DOS Utilities, Module 1 DiskMaster

Back up and rearrange to your disk's content.

By C. W. Mann

WITH ULTRA DOS Utilities Module 1 and DiskMaster, you can mass-copy files among mounted Amiga logical devices and volumes, including hard drives and CD-ROMs. Both allow you to preview certain types of files, rename files, create directories, and perform several other standard AmigaDOS functions using the mouse instead of typed commands. Before you start backing up your chock-full 80-meg hard disk, be warned that both utilities use a file-by-file system rather tha data compression techniques. They are significantly slower and bulkier than dedicated hard-disk backup programs.

Ultra DOS Utilities Module 1

The simpler of the two programs, Ultra DOS closely follows the lead of the popular public-domain program DirUtil, offering graphic display of files and directories, copy, delete, and create functions for files and directories, plus easy transportation up and down the disk or devices' file tree. Ultra DOS goes a step further by letting you enter file names with wildcards and mark batches of files for fast copying and deletion. Two directory windows display the contents of both the source and directory disks at the same time. An optional window shows statistics such as file size (in bytes and blocks), creation date, and which protection bits are set. You also can add or edit file comment lines. An adjustable file-copy buffer enables you to shorten disk access time if your system has a little extra memory. For traditional commands, the Exit To DOS gadget sends you to the CLI.

If you are new to file maintenance operations, Ultra DOS Utilities is an excellent program. Unfortunately, it is unstable in close quarters. Maybe it was an unexpected stack size requirement that prompted the Guru Meditation error when I multitasked Ultra DOS Utilities, DiskMaster, and Amiga WordPerfect 4.1.

The manual is written as a beginner's tutorial on the AmigaDOS functions that the program automates. Though thorough and concise, the manual lacks one important feature: the address and telephone number of Free Spirit Software. Don't lose the box.

Although Ultra DOS Utilities Module 1 claims to be a full-featured hard-disk back-up utility, it is simply a beginner's file and directory manager, like DirUtil. Unlike dedicated hard-disk back-up programs, Ultra DOS makes no visible pro- ►

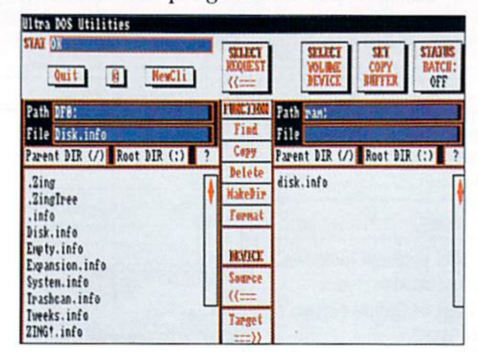
vision for file selection by wildcard or creation date. It saves transferred files in strict AmigaDOS format, rather than using the file-compression routines of the heavy-duty back-up utilities.

DiskMaster

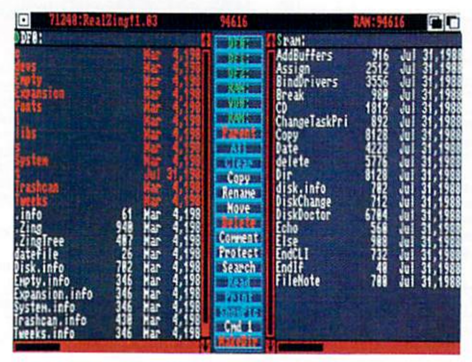
DiskMaster by Progressive Peripherals and Software is a more polished and refined version of the DirUtil theme. You access the features through two pull-down menus and the central column of selection gadgets. Keyboard equivalents, however, would be a helpful addition. Though a nice command shortcut idea, DiskMaster's six programmable (and saveable) Hot Key gadgets would not work for me. The maximum command string length, eight characters, is too short to program useful operations.

You can customize the screen in several ways. DiskMaster offers two interlaced and one low-resolution mode for full-screen display, plus a half-screen interlaced display for multitasking. The color palette selector gives you complete screen color control. For text, you can use Topaz-80 or a narrow 132-column font.

DiskMaster sports numerous advanced features. The programmable functions



Ultra DOS Module 1 is simple.



DiskMaster puts you in control.

let you bend the program to match your learning curve and taste. You can rename any or all device selection gadgets and use wildcards for selecting files. Although you must supply a copy of ARC yourself, DiskMaster lets you automate the file preparation process, a big help for heavy modem users. The program displays IFF graphics and ASCII files and plays digitized sound files at a click of the mouse. The Info Copy feature copies icons automatically along with the actual data file. DiskMaster's smooth-scrolling ASCII-file reader was a delight to use. It displays ASCII and WordPerfect files cleanly, even the control codes.

One deviation from the standard disk-handling theme was unwelcome. Unlike Ultra DOS and the AmigaDOS Format command, DiskMaster's format routine produces a totally blank disk, lacking the standard disk.info file, Trashcan.info file, and Trashcan directory. While this leaves the maximum space on the floppy, I would rather have the standard features on freshly formatted disks.

DiskMaster's documentation, a large reference card, assumes you understand AmigaDOS, but want to use the mouse



instead of the keyboard. Do not expect in-depth tutorials.

Beginner or Mouse Lover

If you are an AmigaDOS beginner, get Ultra DOS Utilities. If you are competent with AmigaDOS, but are more comfortable with the mouse, DiskMaster is your utility of choice. While it does not hold your hand through each operation, DiskMaster is reliable, stable, and (except for the Hot Key gadgets) easy to use.

Ultra DOS Utilities Module 1
Free Spirit Software Inc.
PO Box 128
58 Noble St.
Kutztown, PA 19530
215/683-5609
$59.95
No special requirements.

DiskMaster
Progressive Peripherals & Software
464 Kalamath Street
Denver, Colorado 80204
303/825-4144
$49.95
No special requirements.

GAME SHORTIES

Death Sword

By Lou Wallace

IF YOU LIKE electronic gore, you will be suitably impressed with Death Sword, a one- or two-person battle game featuring a pair of Conan The Barbarian look-alikes.

The object is to rescue a princess kidnapped by the evil Drax. To get to her you must fight a series of warriors, using your sword or body to strike at your opponents. Each one can withstand only so many blows, eventually collapsing and dying. As you defeat each warrior, you proceed to the next-most-difficult of ten different battles, finally encountering Drax himself. If you can beat him you win; if not you die.

Dying is very much the name of the game. This is violent, hand-to-hand combat between two humanoids. They strike deadly blows—even chop off each other's heads.

Controlled by a joystick, Death Sword has over a dozen different fighting and defensive moves. The warriors are large, detailed animations; consequently, with a little practice you can become proficient at the art of fighting like a barbarian.



Brandish your sword and fight to the death.

Digitized sounds make the game more realistic and enjoyable: Swords clang as they strike each other, warriors yell while fighting and cry out when injured. If you chop off a head, it bounces with a disgusting, squishy thud.

Backgrounds for battles include a forest, lava pit, dungeon, or throne room. Battles in one-player mode are always to

the death, while in two-player mode they are restricted to a certain time period. Although the opponent for each successive level has a different style of fighting—as well as increasing skill—I found that the same fighting technique was effective most of the time. Just keep rolling and knock over your opponent—with an occasional well-placed kick or chop thrown in—and you should be able to win. On certain levels, however, it does seem easier to behead the enemy than on others (a 5000-point bonus is added to your score each time you cause a head to roll).

One problem I have with Death Sword is that you can too quickly learn to reach the higher levels; this is not the type of game that will hold your interest for a long time.

A different kind of problem for some people may be the graphic realism of the violence. When you behead someone blood spurts as the body collapses, and the triumphant gladiator always gives one last kick to the defeated opponent. Bodies are carried away by a little green ghoul. Parents may decide this is not the kind of game small children should be allowed to play.

I do have to admit, however, I had fun playing the game. The gladiators are easy to control and the animation is impressive. Death Sword is a good action game: It does what it was designed to do, and it does it well. *($24.95, Epyx, 600 Galveston Dr., Redwood City, CA 94063, 415/366-0606, joystick and 512K required.)*

—Louis Wallace

Ports of Call

SHIPPING WORK IS is a continuous strategy session. You must match loads to equipment, and equipment to personnel. Loads change, prices change, accidents occur, and all sorts of uncontrollable events disrupt your strategy. Make it succeed, and the satisfaction is enormous. Fail, and your job—maybe even your company—is suddenly on the line.

In Ports of Call, you assume the role of a "tramp ship" owner. Tramp ships, the manual explains, compete for freight not handled by vessels registered to the countries involved. With five million dollars, you buy your first rig (or two) and start operations by chartering a load of freight. Delivery rates depend on competition, freight value, traveling distance, and a sizable random element representing the world beyond your control. If you deliver the freight safely, you get paid.

Income can be high (you can earn over two million dollars in a single trip), but expenses are high as well. Fueling a ship can cost $200,000; repairs and maintenance can cost more than that. Tugs will charge as much as $10,000 to help you dock, and the same to tow you out. You must also consider canal charges (Suez costs $70,000 one way), and if you mortgage ships or extend your credit, monthly costs will mount. Also, cargo can be stolen, rats and disease can strike, your office can be robbed, and you can collide with reefs or with other ships.

Up to four people can play Ports of Call. Each ship owner has an office, and all can can visit the Ship Broker, where ships are bought and sold, at any time.

The main screen is the World Simulation Display—a stunning, flat projection map of the world, on which all ships are displayed. Here, a calendar tracks passing time; the game proceeds in increments of one day. As events take place, the World Simulation gives way to other displays. Each time a ship enters or exits port, the Tug screen appears. Once in port, the Port screen appears. Refueling brings up a separate screen, as does repairing, and at sea, mini-arcade games and occasional other displays demand the screen as well. The displays are graphically excellent, and many have very good sound effects, but each requires disk access. With four players, the game can become extremely lengthy.

The only other negative is the arcade element. Ports of Call is so well designed as a shipping simulation that the exercises for steering through reefs, rescuing life rafts, and avoiding collision seem counter-productive; they quickly become tedious. If there were a way to toggle the arcade elements on and off, the game would improve significantly. Also, a simple selection menu to control port access, refuelling, and repairing could replace the respective full-screen displays. An otherwise first-rate game, Ports of Call is strategically addictive. *(Ports of Call, Aegis Development, 2210 Wilshire Blvd., Suite 576, Santa Monica, CA 90403, 213/392-9972, $49.95, one megabyte required.)*

—Neil Randall ■

PROGRAMMING AND MATHEMATICS MADE EASY
BY JOHN KEMENY AND TOM KURTZ

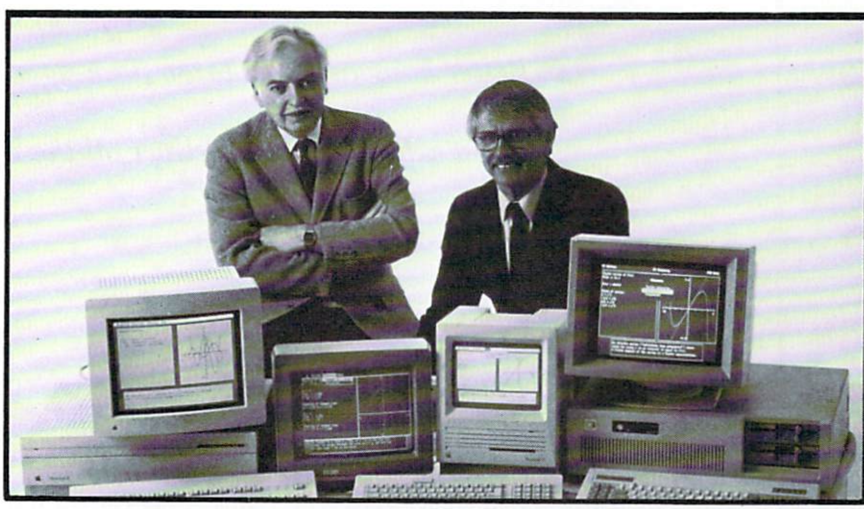
The True BASIC Language System

You don't have to be a programmer to use True BASIC. You can be designing simple programs in no time at all. That's what BASIC means, and always has meant.

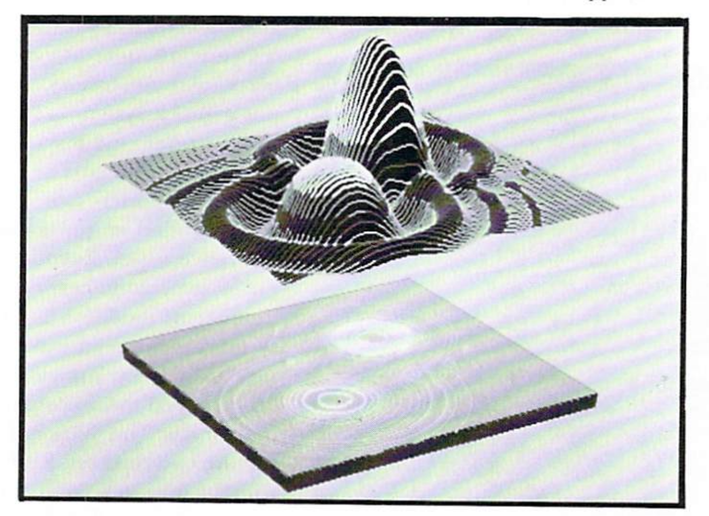
True BASIC is a structured language that's easy to use. A compiler, editor and debugging tools rolled into one, True BASIC gives you speed, great graphics and power that lets you get the most from your Amiga. Our optional toolkits allow the more knowledgeable programmer unlimited extensions . . . Use the 3-D graphics toolkit to add depth in a picture; Or, the Developer's Toolkit to launch sprites and bobs, add pull-down menus, and get at all the intuition and Kernal features. Soon you'll want to build your own external toolkits!

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Programming Language with Runtime $99.95
Optional Toolkits $69.95 each



Back in 1964, Drs. John G. Kemeny and Thomas E. Kurtz created BASIC, the most popular computer language in the world. Their latest creation is True BASIC, an amazing version of BASIC that is powerful yet easy to use. In addition, Drs. Kemeny and Kurtz pioneered the use of computers in mathematics education, and have received numerous awards for their work. They developed the Kemeny/Kurtz Math Series, a full range of stand-alone software applications for high school and college-level mathematics.



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The Kemeny/Kurtz Math Series is software that knows mathematics. It's designed by experienced teachers, class-tested, and used in hundreds of high schools and universities. These best-selling math packages help you organize your thoughts, understand key concepts, step through examples, and *solve* real problems. You can actually see the steps to the right answers—graphically.

The Math Series provides a full range of stand-alone (does not require the True BASIC language) packages for secondary school and college-level mathematics. Choose from Arithmetic, Algebra I, Algebra II, Pre-Calculus, Trigonometry, Calculus, Discrete Math, Probability, and Statistics. Each package lists for $49.95.

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WHAT'S NEW?

Better hang an extra-large stocking on the mantle this year if you expect Santa to deliver all these goodies.

Compiled by Barbara Gefvert

FOLLOW ME

WANT TO DESIGN your own peripherals? You need a prototyping card!

The **AM-200A Prototyping Board** for the Amiga 2000 provides both Zorro-2 and IBM-AT card edge connectors with gold-plated fingers. Also included are a hole pattern for D-pin connectors and two 13 × 13 pin grid arrays. This board is $49.95 from NES, 6805 S.W. 8th Ave., Portland, OR 97219, 503/246-9311.

If you want to build expansion devices but don't have extensive system knowledge, check out the **A2000 Auto-Config Proto Card**. Because the Proto Card contains auto-configuration logic, prototypes install into the system automatically. You can determine board characteristics such as the number of wait states, address space up to two megs, free memory pool linkage, and interface buffer direction control for on-board DMA controllers. Patterns for headers and various D shell connectors are included, and the system bus is fully buffered. The complete package is $139.95, but you can get the Proto Card without auto-config logic for $59.95. Contact Interactive Video Systems at 15201 Santa Gertrudes Ave., Suite Y102, La Mirada, CA 90638, 714/994-4443.

DO YOU SEE WHAT I SEE?

FOR THE MOST demanding tasks, only a large-screen, non-interlaced, high-resolution monitor will truly complement your Amiga 2000. The **Viking 1** is such a monitor. The 19.6-inch screen offers four intensity levels for gray-scale use, and a resolution of 1008 × 800 pixels. Viking 1's display supports lo-res modes at a 63 Hz refresh rate. The monitor results from a joint effort by Commodore and Moniterm Corporation, and sells for $1995. For further details, contact Moniterm at 5740 Green Circle Dr., Minnetonka, MN 55343, 612/935-4151, or Commodore at 1200 Wilson Dr., West Chester, PA 19380, 215/431-9100.



Set your sights on the 19-inch hi-res Viking 1.

VIDEO DIRECT

CAN YOU GET broadcast-quality video direct from Amiga graphics? Magni Systems answers "Yes!" with their **4004** (NTSC version) and **4005** (PAL) Video Graphics Systems. The Magni 4000 series systems consist of twin Zorro-2 cards. The genlock/encoder card combines the usual two-step graphics-conversion process into one; it contains sync and blackburst generators, an input genlock system, a broadcast encoder, and a system clock for graphics. The genlock function lets you synchronize encoded graphics with a reference input. Encoder output is switchable between a number of modes. The Magni systems include an interface card to pick up Amiga graphics and feed locking signals to the Amiga. The 4004 is $1695 for the two-card set; $1995 with an optional control box; 4005 prices are $1865 and $2165, respectively. For more information, call Magni at 9500 S.W. Gemini Dr., Beaverton, OR, 97005, 503/626-6225, 800/237-5964.

TAKE COVER

DON'T LIVE IN fear of damaging your Amiga by spilling something on your keyboard—put a lid on it! **SafeSkin** is a molded keyboard cover designed to remain in place at all times. The clear, non-glare, flexible polymer is contoured so that adjacent keys are unaffected by typing. Now available for the A1000 keypad, SafeSkin is $29.95. Run for safety to Merritt Computer Products, 4561 S. Westmoreland, Dallas, TX 75234, 214/339-0753. ►



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OverDrive™

is the first "hardcard" design DMA SCSI hard drive controller for the A2000.

Mount a 3.5" SCSI drive to the OverDrive and save your drive bays for other uses...like the Konica 10 megabyte floppy drive. (See below.)

- The OverDrive uses a two-channel Motorola 68440 direct memory access chip to guarantee exceptional speed and compatibility with the Amiga's Motorola 68000 microprocessor.
- The OverDrive is autoconfig and compatible with Workbench 1.3 and 1.4, Fast File System and autobooting.
- A total of 7 devices can be added in various internal or external configurations.

With all of the above, you get the easiest to use software on the market. It is completely mouse driven, making the formatting process almost automatic.

Pacific Peripherals offers Seagate 30, 50 and 62 megabyte drives as well as the Konica 10 megabyte floppy. The Konica drive operates as a 75ms hard drive using high density (480 TPI) floppy disks giving you the speed of a hard drive and the unlimited capacity of a floppy drive. Exceptional error correction capabilities make your data safer than it would be on a standard 5¼" disk.

OverDrive only	$249.00
OverDrive with:	
30 MB DRIVE	
50 MB DRIVE	
62 MB DRIVE	*
KONICA	*

*uses 5¼" drive bay

SubSystem 500™

is a two-slot expansion chassis for the A500 that uses cards designed for the A2000.

An optional 3.5" floppy drive may be added as an "external" drive but is, in fact, more convenient than any drive available for the A500 (including the A500 internal drive). The 100-pin "Zorro II" A2000 expansion cards are less expensive, more uniform in design and more available than pure A500 peripherals. (For example, try to find a DMA controller designed specifically for the A500. How about an A500 Bridgecard?) Rather than take power from the A500 power supply, the SubSystem comes standard with a 54-watt power supply.

SubSystem 500	$249.00
***SubSystem 500*/drive**	$399.00




OverDrive and SubSystem 500 are trademarks of Pacific Peripherals. Workbench, Fast File System, and Bridgecard are trademarks of Commodore-Amiga, Inc.

Pacific Peripherals
P.O. Box 14575 Fremont, CA 94539

Circle 107 on Reader Service card.

Dealing Cards

HAND YOUR AMIGA 500 or 2000 up to four megabytes of RAM. A 100-pin board, the **RC4 RAMcard** fits into an A2000 expansion slot, or, with a little help from the **RC4-AD** adapter box, hooks onto the A500 bus. The RC4 card accepts 32 standard-size DIP 1-megabit RAM chips configured as 256K by 4 bits; another version accepts DIP DRAMS, one megabit by one, in two- or four-megabyte configurations. Custom refresh circuitry reduces power consumption and eliminates CPU and refresh contention. The adapter chassis comes with its own power supply, and powers on and off with the computer. Digitronics sells the unpopulated RAMcard for $225, and the card-and-chassis combo for $325. Prefer to build your own? The RC4 board is available in kit form for $100. Get your cards from Digitronics, PO Box 206, Villanova, PA 19085, 215/459-4493.

Smooth Drive

TRADITIONALLY, A media defect in your hard disk meant having to partition and reformat the entire drive. The **SSD Hard Drive System** for the Amiga 500 breaks tradition. If you bump or drop your SSD and a media defect results, the driver software automatically replaces the corrupted block with one from a reserved portion of the disk. This hard-disk system is comprised of a SCSI host adapter with auto-boot circuitry and a chassis that provides physical mounting for your monitor and two SCSI devices. The chassis can hold one 5¼-inch and one 3½-inch device, and contains two DB-25 female connectors. An intelligent SCSI controller chip handles most drive operations, leaving the CPU free for other tasks. Get relief from reformatting from Comspec Communications, 153 Bridgeland Ave., Unit 5, Toronto, Ont., Canada M6A 2Y6, 416/785-3553.

Run Faster, Jump Higher

ON YOUR MARK, get set, go! Computer System Associates' (CSA) **FastPac** systems promise to run most standard Amiga software faster. CSA has incorporated Commodore's latest operating system in fast EPROM on the CSA 14-MHz 32-bit Static RAM board. FastPac technology is available in various configurations, from a $295 upgrade for those who already own CSA products, to a $2495 system including CPU board, SRAM board, and various RAM/ROM combinations to 1.75 megs.

Now you can take advantage of CSA's processor boards without the high cost of 32-bit RAM. Fully loaded, **DragStrip** makes use of three independent Zorro-2 boards, yet it uses only one slot in your A2000. It's designed to hold two Commodore (two to eight meg) 16-bit DRAM boards that combine to create up to 16 megabytes of 32-bit DRAM. At $795, DragStrip includes Kickstart in ROM running at 14 MHz, as well as autoboot capability with Commodore's 2090A hard-drive controller. Call or run to CSA, 7564 Trade Street, San Diego, CA 92121, 619/566-3911.

HARDWARE COLLECTIBLES

IF YOU NEED hardware, you should know about M.A.S.T.'s (Memory And Storage Technology) Matchbox Collection of peripherals. Whether you want one extra floppy drive or two, M.A.S.T. can help with **Unidrive** ($169) and **Twindrive** ($299). Both units are compact (Unidrive is 1⅞ inches high, Twindrive is twice that), and are covered by a one-year warranty. Special circuitry minimizes power to the units when they are not in use, and you can power them via the Amiga or an external power pack.

Don't forget extra memory for your A500! You can pack up to two megabytes of RAM into the auto-configuring **Minimegs 500**. The unit features low-power CMOS design and a RAM tachometer. **Minimegs 2000** fits into the 86-pin slot on your A2000. The card autoconfigures and holds up to one meg. You can populate either device in ½-meg increments. Unpopulated, Minimegs 500 sells for $199, and the A2000 version sells for $179.

Whomper Plus, the hardware virus deterrent, protects df0: in your A500 or A1000, and both df0: and df1: in your A2000. The included Life Support Console has switch controls for various write-protect functions, while the Internal Plug Connector allows partial or total write-protection of internal drives and prevents writing to the boot block during warm and cold boots. Whomper Plus is $69.95; **Whomper Out**, the virus deterrent for your external drive, is $39.95.

Make your Amiga roar with **Tiny Tiger**, a SCSI interface and drive unit in a single case. Tiny Tiger's cable attaches to your parallel port and allows pass through. An external power supply drives the unit, and a standard 25-pin connector on the rear of the case lets you plug in additional SCSI devices. The interface, drive case, and power-source package sells for $249. Complete with a 20-meg drive it's $699; you can also get it in other configurations up to 180 megabytes ($1664).

A SCSI interface of a different sort, the **X-1000** plugs onto the bus of your A1000. The six-layer board gives you DMA for $349.

Kick Booter ($169) lets you boot your Amiga from a variety of external devices including hard drives, RAM disk, parallel-port attachments, and—via serial channel—even an external drive connected with another Amiga. Kick Booter plugs into your 68000 socket; it provides a math coprocessor socket and eight kilobytes of CMOS battery-backed RAM.

Does your SCSI controller have a capacity for four megabytes of RAM? Does it provide for synchronous as well as asynchronous transfer? **Lightning Five** does. Lightning Five promises to transfer data at up to four megs per second, and it is designed to operate with the M2611S. The unit sells for $395, without RAM.

You can start your Matchbox collection by calling M.A.S.T., 7631 E. Greenway Rd., Scottsdale, AZ 85260, 602/483-6359. ■

PUBLICATION DATE-OCTOBER 17, 1988



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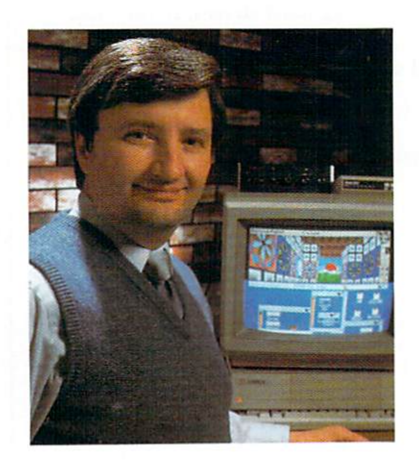
by Rob Peck

THE AMIGA COMPANION, a new book from AmigaWorld magazine, is your comprehensive guide to AmigaDOS and the CLI. In clear, concise, easy-to-understand language, The Amiga Companion shows you how to use the full range of powerful AmigaDOS and CLI commands to get maximum performance from your Amiga 500, 1000, or 2000. Authored by Rob Peck, formerly of Commodore-Amiga, The Amiga Companion is written with a thorough understanding and mastery of this vanguard computing system.

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- **Informational Commands**
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Plus dozens of additional subjects to tap the full potential of your Amiga computer.



Author Rob Peck is one of the most respected and knowledgeable leaders in the Amiga community. While with Commodore-Amiga, Rob wrote the ROM Kernel Manual, the bible of Amiga Developers. Rob is also the author of Programmers Guide to the Amiga and numerous magazine articles, including "Reaching the Notes: Easy Access to Amiga Audio" in the July/August 1987 issue of AmigaWorld.

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AW10

HELP KEY

He's making a listing and checking it twice,

so your Amiga is not naughty but nice.

By Louis R. Wallace

KEYED UP

Q: *IN MY AMIGA Basic program, I want the user to have the choice of using the keyboard or the mouse and menus to control the program. I would prefer to use the function keys, but so far I haven't been able to find out how to do this from Amiga Basic. Is it possible?*

J. McGover
Youngstown, OH

A: Assigning special values to the Amiga's function keys from within Amiga Basic is extremely difficult. You can read them quite easily, however, using the values returned by the keyboard when you press a key. Try this short program:

```
Loop:
  A$ = INKEY$
  IF A$ = " " THEN Loop
  PRINT ASC(A$)
  GOTO Loop
```

When you run the program and press a key, you will see a number, the ASCII value of the key you pressed. Press the F1 through F10 keys; you will see the numbers 129 through 138, the ASCII values for the ten function keys. In your program, you can read the keyboard in this way and determine if a function key (or any other key) has been pressed, and react accordingly. If you press CTRL-F1, CTRL-F2 or CTRL-F4 through CTRL-F10, you will get the values 1 and 2 or 4 through 10. CTRL-F3 will give you the same result as pressing CTRL-C, a break.

RGB OR TV

Q: *Is there an interface that allows you to use a composite monitor or TV with an Amiga? If so, is it worth buying or should I just get a "real" monitor?*

C. Conyers
Mt. Laurel, NJ

A: For $49.95, the C-View I, a RGBA-to-composite adapter from C-Ltd (723 E. Skinner, Witchita, KS 67211, 316/267-3807), hooks your Amiga to a composite monitor and gives you a readable color display. If you have a choice, get the RGBA monitor. You owe yourself the full effect of the Amiga's graphics. You owe your eyes as little strain as possible.

TICK TOCK

Q: *I am writing an Amiga Basic program, and need to have a clock on the screen showing the current time. I know the TIME$ function will print the time, but I want updates every second or two. Is there a ROM Kernel or Intuition routine I can call using the LIBRARY command that will work?*

T. Shrinski
Parma, OH

A: Save yourself some work and use the ON TIMER(n) GOSUB routine name command, which tells Amiga Basic to jump to a subroutine that will print the time at regular intervals. This is a form of event trapping; Amiga Basic monitors the computer automatically for the declared event and performs a designated task at that time. The ►

```
ON TIMER(1) GOSUB PrintTime
TIMER ON
' check for CTRL-C to exit the program
ON BREAK GOSUB ExitDemo
BREAK ON
p$ = "The Quick 4096 COLOR Multitasking Amiga"
p$ = p$ + "jumped over the slow blue pc."
p$ = p$ + CHR$(13)
l = LEN(p$)
DIM p$(l)
FOR i = 1 TO l
  p$(i) = MID$(p$,i,1)
NEXT i
CLS
c = 1
Main:
FOR j = 1 TO 20
  FOR i = 1 TO l
    PRINT p$(i);
  NEXT
  c = 3 - c
  COLOR c,0
NEXT
CLS
GOTO Main
ExitDemo:
PRINT
COLOR 3,0
PRINT "Okay, Okay I'm done!"
COLOR 1,0
END

PrintTime:
OldLine = CSRLIN
OldColumn = POS(0)
LOCATE 1,70
COLOR 3,1
PRINT TIME$
COLOR c,0
LOCATE OldLine,OldColumn
RETURN
```

example program (see box on previous page) monitors two events. It checks for a CTRL-C (a break) to exit the program, and every second it jumps to a subroutine to print the current time. The rest of the time it prints text.

Crash Course

Q: *I understand that some multitasking-related system crashes occur because the Amiga does not protect its memory from being overwritten. If I add a 68851 memory management unit (MMU), will it help prevent system crashes?*

I have been told that the Amiga's Hold-and-Modify (HAM) mode will work in all resolutions, but I have never seen any examples in 640 × 400 mode. Can I get 640 × 400 HAM mode on the current or future video chips?

J. C. Clement
Quebec, Canada

A: With multitasking, one common reason for crashes is that some software does not follow the proper rules for using system resources, including RAM. Sometimes this results in more than one program accessing the same area in RAM, corrupting programs or data. A 68851 will do little good. The Amiga's operating system was not designed for hardware protection of memory, and therefore it will have no direct provisions for using the MMU. Even if Commodore rewrote the operating system to support RAM protection, it would probably slow down the computer to the point that multitasking would work no better on the Amiga than it does on a MS-DOS machine.

The Amiga does not support HAM mode in any of its high-resolution (640 wide) display modes. HAM will work in Interlaced mode (320 × 400) as well as higher resolutions that use the overscan (border) areas of the screen. The Amiga design engineers all agree that HAM will not work in high resolution.

The enhanced chip set can address a full megabyte of RAM for graphics and sound and has programmable horizontal and vertical resolutions. The chips also will support larger blitter RAM moves (8 × 11 bits) than the current chips. The new chips will have a 640 × 400 non-interlaced (four-color) mode that will require a special 31.5 kHz multiscan monitor.

Pass It Along

Q: *According to* The Amiga Basic Manual, *when you use the WINDOW function (not the command syntax) with a parameter of 7 or 8, it returns information about Intuition and Rastports. What good are these functions to Amiga Basic programmers?*

J. LeFon
Quebec, Canada

A: In rudimentary Amiga Basic programming, these functions do not have any use, but they are quite useful if you want to access the functions and commands available through the LIBRARY statement. Many ROM and Intuition routine calls require you to tell them where they can find the structures or information lists that describe the current window or custom screen. The WINDOW( ) function can tell them the address of this information. Without these pointers, many powerful ROM and Intuition routines would be unavailable.

All in One

When instructing the computer to execute Amiga Basic, then load and run a BASIC program, you must enter the command all on one line, not two lines, as shown in "Get Started" (Oct. '88 Help Key). ■

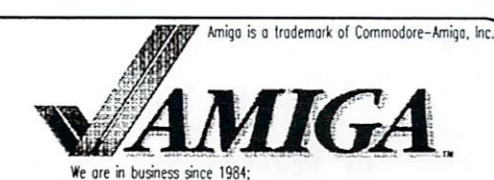


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The Amiga Companion, **126**
197 AMnews Corporation, **85**
82 Anakin Research, **118**
217 Antic Software, **4**
216 Antic Software, **73**
297 Baudville, **112**
132 Briwall, **108, 109**
163 Brown-Wagh Publishing, **17**
164 Brown-Wagh Publishing, **69**
165 Brown-Wagh Publishing, **47**
166 Brown-Wagh Publishing, **29**
73 California Access, **114**
* Cinemaware Corporation, **57**
146 Communications Specialties, Inc., **72**
53 Compuserve, **59**
148 Computability, **117**
41 Computer Mail Order, **74, 75**
69 Computer Mart, **119**
199 Creative Computers, **87, 88, 89**
168 Datel Computers, **97**
98 Demonware, **53**
28 Digital Creations, **61**
97 Digitek, Inc., **CIII**
192 Direct Micro, **132**
89 Discovery Software, **35**
191 Epyx, **45**
299 EZ-Soft, **124**
262 Flexible Data Systems, Inc., **116**
183 Fuller Computer Systems, **132**
* GE Information Services, **115**
26 Go Amigo, **92, 93**
150 Gold Disk, **CII, 1**
62 Great Valley Products, Inc., **33**
145 Great Valley Products, Inc., **33**
221 G.T.I., **81**
229 Incognito Software, **13**
125 InterComputing, Inc., **131**
185 Interplay, **39**
203 Joker Software International, **15**
23 Lattice, Inc., **71**

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122 Lightspeed Distribution, **100, 101**
31 Manx Software Systems, **41**
103 MicroBotics, Inc., **63**
227 Micro Systems International, **129**
78 Microway, **81**
176 Mills Industries, **86**
236 Mindware International, **7**
18 Mindware International, **11**
38 New Horizons Software, **27**
102 NewTek, Inc., **CIV**
119 NewTek, Inc., **65**
117 Oceanic America, **79**
21 Origin Systems, **43**
107 Pacific Peripherals, **123**
252 Palomax, Inc., **129**
187 Precision Incorporated, **49**
209 Precision Incorporated, **51**
195 Questrik, **95**
79 R & DL Productions, **130**
179 Rainbird, **55**
24 ReadySoft, Inc., **2**
87 ReadySoft, Inc., **37**
113 Redmond Cable Corp., **132**
201 RGB Video Creations, **132**
154 RSISystems, **120**
211 SoftLogik Corporation, **5**
128 Software Discounters of America, **127**
194 Software Excitement, **111**
10 Software Visions, Inc., **99**
96 Sound Quest, Inc., **113**
206 Sprite Technology, **129**
244 Strategic Simulations, **18**
228 SubLOGIC Corporation, **110**
157 SunRize Industries, **67**
56 Taito Software of America, **31**
61 The AAmiga Center, **120**
204 The Right Answers Group, **125**
134 The Software Shop, **106, 107**
66 True Basic, Inc., **121**

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3	8	13	18	23	203	208	213	218	223	403	408	413	418	423
4	9	14	19	24	204	209	214	219	224	404	409	414	419	424
5	10	15	20	25	205	210	215	220	225	405	410	415	420	425
26	31	36	41	46	226	231	236	241	246	426	431	436	441	446
27	32	37	42	47	227	232	237	242	247	427	432	437	442	447
28	33	38	43	48	228	233	238	243	248	428	433	438	443	448
29	34	39	44	49	229	234	239	244	249	429	434	439	444	449
30	35	40	45	50	230	235	240	245	250	430	435	440	445	450
51	56	61	66	71	251	256	261	266	271	451	456	461	466	471
52	57	62	67	72	252	257	262	267	272	452	457	462	467	472
53	58	63	68	73	253	258	263	268	273	453	458	463	468	473
54	59	64	69	74	254	259	264	269	274	454	459	464	469	474
55	60	65	70	75	255	260	265	270	275	455	460	465	470	475
76	81	86	91	96	276	281	286	291	296	476	481	486	491	496
77	82	87	92	97	277	282	287	292	297	477	482	487	492	497
78	83	88	93	98	278	283	288	293	298	478	483	488	493	498
79	84	89	94	99	279	284	289	294	299	479	484	489	494	499
80	85	90	95	100	280	285	290	295	300	480	485	490	495	500
101	106	111	116	121	301	306	311	316	321	501	506	511	516	521
102	107	112	117	122	302	307	312	317	322	502	507	512	517	522
103	108	113	118	123	303	308	313	318	323	503	508	513	518	523
104	109	114	119	124	304	309	314	319	324	504	509	514	519	524
105	110	115	120	125	305	310	315	320	325	505	510	515	520	525
126	131	136	141	146	326	331	336	341	346	526	531	536	541	546
127	132	137	142	147	327	332	337	342	347	527	532	537	542	547
128	133	138	143	148	328	333	338	343	348	528	533	538	543	548
129	134	139	144	149	329	334	339	344	349	529	534	539	544	549
130	135	140	145	150	330	335	340	345	350	530	535	540	545	550
151	156	161	166	171	351	356	361	366	371	551	556	561	566	571
152	157	162	167	172	352	357	362	367	372	552	557	562	567	572
153	158	163	168	173	353	358	363	368	373	553	558	563	568	573
154	159	164	169	174	354	359	364	369	374	554	559	564	569	574
155	160	165	170	175	355	360	365	370	375	555	560	565	570	575
176	181	186	191	196	376	381	386	391	396	576	581	586	591	596
177	182	187	192	197	377	382	387	392	397	577	582	587	592	597
178	183	188	193	198	378	383	388	393	398	578	583	588	593	598
179	184	189	194	199	379	384	389	394	399	579	584	589	594	599
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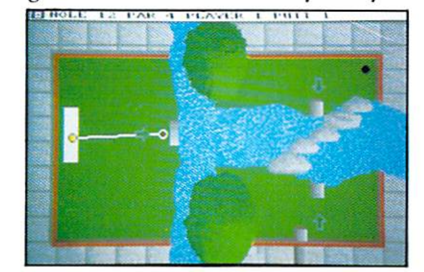
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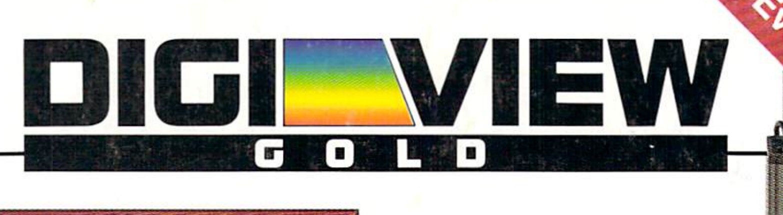


Amiga versions shown here



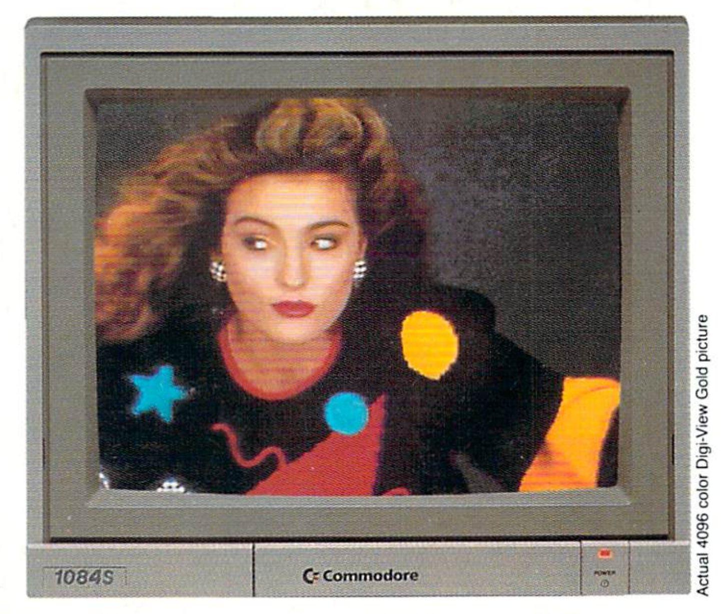
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